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AUDIO MEDIA

THE WORLD'S LEADING PROFESSIONAL AUDIO TECHNOLOGY MAGAZINE

Mid-Year Gear Picks *page 30*

Special Supplement

Live Sound Technology

Roland M-480

Full On-Stage Review

Product Sampler: *Live Microphones*

The Lost Thing

Audio For An Oscar Winner

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Sennheiser HD800 • Rycote Portable Recorder Audio Kit • Audio-Technica BP4002 • API 527 • Focusrite Scarlett 8i6 • Audiorama: In The Round • Wireless Update • Unit Post Production • Classic Cut: Apocalypse Now • GeoFocus: Russia • What's Up UK: Festival Sound • Cut Scene: Develop Preview • Video Guide: Colour Grading Part 15 • Recording News • Post News • Broadcast News • AMSR News • And More...!

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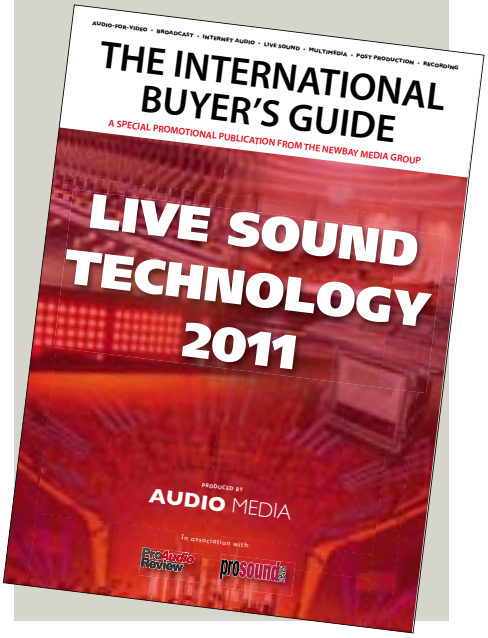
Special Supplement

Live Sound Technology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If Carlsberg did headphones… but Sennheiser got there first. These might just be the best headphones in the world, says ALISTAIR McGHEE.

Perfect take every time ...

Gil Norton

Foo Fighters
Pixies
Gomez
Feeder
Counting Crows
Maximo Park

"I can't remember a single session over the last 5 years on which I haven't used an SE mic"

"I've found the 4400a to be a hugely versatile mic - it's great for acoustic instruments, and I especially like it on drums and percussion. Its hyper-cardioid pattern is extremely useful on toms and snare as it controls cymbal spillage really well and delivers great punch and tone"

- 4 polar patterns
- 10 and 20dB pad
- 60/120 Bass cut
- Hand crafted capsule specialist neutral tuning for multiple instrument and vocal applications
- Multi function shock mount (patent pending)*
- Available as a stereo pair

The 4400a is specially tuned to get the most from a wide range of recording applications, including vocals, drums, guitars, piano, strings and wind. This makes it the ideal choice for project studios and professionals alike, a mic that engineers in the know can call on in any situation to get the best results, and fast!

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leader

Sound, of itself, is not a thing. It's a small set of stuff and madness that we call sound. And even when you do treat it as a thing, it's such a simple one that you sometimes wonder how it is it's kept us amused for so long. It's a bit like dentists – they study for years and all they really have to worry about is a small white thing; how hard can that be?

The sheer variety of sound that has been realised into the atmosphere so far is staggering, and it keeps on coming. My brain has trouble connecting a small, unassuming wiggle in the air to that myriad of tones, soundscapes, ambiences, and phonic miscellany that fill our audible environment. You can't leap from one to the other – you have to take baby-steps in your head. Even then you might end up with a very complicated virtual patch with distortions, resonances, envelope filters, and effects galore to help you on your way.

So can you imagine going from silence into a world with only the contents of a well-stocked recording and production facility to help? What does that world sound like? I'm willing to bet that everyone's is different, and much of the processes were different too. It's just bonkers that we can create such variety by wibbling the air in a certain way. It's only air.

Sculptors can turn a single variety of mud into a representation of any object; painters can turn a few colours into fabulous landscapes and portraits; modern artists can turn piles of rubbish… into piles of rubbish (okay, they don't count) – but there are many more similar examples of simple raw materials becoming incredibly sophisticated things with the expert application of knowledge, experience, and great tools.

And this describes almost exactly what sound designers, engineers, producers, sound editors, and everyone else who makes a living for audio production do every day. Nice.

Don't forget to enter our competition to win super-passes to the Develop Conference in July, or simply sign up for the audio track – it never fails to inspire.

Paul Mac, Editor

AUDIOMEDIA *is a Sustaining Member of the Audio Engineering Society.*

AUDIOMEDIA

www.audiomedia.com

AUDIO MEDIA (Europe), Suite L16, South Fens Business Centre,
Fenton Way, Chatteris, Cambs, PE16 6TT
Telephone: +44 (0) 1354 669960 – Facsimile: +44 (0) 1354 669965
General E-mail: mail@audiomedia.com – Press Release E-mail: pr@audiomedia.com

Managing Director/Circulation
Angela Brown
a.brown@audiomedia.com

Group Publisher Europe
Raffaela Calabrese
r.calabrese@broadcast.it

Editor In Chief
Paul Mac
p.mac@audiomedia.com

News/AMSR Editor
Jo Fletcher-Cross
pr@audiomedia.com

Production Editor
Lanna Marshall
l.marshall@audiomedia.com

Design & Production Manager
John-Paul Shirreffs
jp.shirreffs@audiomedia.com

European Sales Manager
Graham Kirk
g.kirk@audiomedia.com

Acting News Editor
David Mackenzie
d.mackenzie@audiomedia.com

Regional Sales Manager
Bob Kennedy
bkennedy@imaspub.com
+44 (0)1279 861264

US Sales Manager
David Carson
dcarson@nbmedia.com
+1 (212) 378 0400 ext.511

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can offer our 'Zero Downtime' warranty on all our products, meaning you'll get an immediate replacement from new stock for any mic with a manufacturing defect, no long wait for repairs.

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If your sE microphone/ accessory fails due to a manufacturing defect within the first 3 years we will replace it immediately under our 'FREE Replacement Warranty' with a brand new mic. The replacement mic also has a 3 year FREE replacement warranty and this means a lifetime of free warranties for mics with manufacturing defects. 'Zero Downtime' means that you will never have to wait for repairs since you'll get a replacement for any faulty mic from stock. There is no expiration date on this policy.

If the product develops a fault more than 3 years from purchase, we would consider this as 'wear and tear' and we then offer an 'Upgrade Warranty' which allows you, the customer, to purchase a brand new replacement (or equivalent sE product) direct from sE Electronics in the UK at 50% off the list price at the time of replacement purchase.

FIRST MPS MEETS WITH ACCLAIM

The inaugural Music Production Show, held at Leeds Armouries on May 13-14, was warmly received by exhibitors and visitors alike according to organisers UK Music Shows Ltd. "We were delighted with the response to our first Music Production Show," commented Show Manager Jason Hunt. "Feedback from exhibitors has been exceptional, with many pledging their support for shows in the future, and visitors were extremely positive about the weekend."
www.musicproductionshow.co.uk

GUITARISTS SING HALLELUJAH

HALO, a dynamic mic for guitar amps, is now available from Sontronics. First announced at Musikmesse, HALO is based on technology developed for the STC-80 handheld dynamic mic. Springs built into the outer ring isolate the capsule from stage vibrations. "We've taken the dynamic capsule from the STC-80, tweaked it a little bit, and added a bit of design flair to create a microphone that guitarists won't want to live without," explains Sontronics founder and microphone designer, Trevor Coley.

www.sontronics.com

The Royal Waves

Waves Audio had joined forces with Abbey Road Studios to release a plug-in modelled after the historic microphones used by King George V, King George VI, and Queen Elizabeth in the events that inspired *The King's Speech*. The King's Microphones plug-in is an EQ filter processor that recreates the tonal character of these microphones, with three proximity positions for each.

The original microphones were recently restored and used to record audio for *The King's Speech*. Peter Cobbin, Senior Recording Engineer at Abbey Road Studios, worked closely with the Waves engineering team on the development of the plug-in.

"Last year I had the fantastic opportunity to use the microphones built for the British Royal family whilst recording the score for *The King's Speech*," commented Cobbin. "This year I am proud that the combined efforts of Abbey Road Studios and Waves have produced a wonderful authentic plug-in that captures the very essence of these beautiful and rare microphones."
www.waves.com

The Reducer

SPL has expanded its Power Soak product line for guitar players with The Reducer, a purely passive power attenuator for guitar amps. The Reducer was developed in co-operation with German amp specialist Tonehunter to reduce the power output of guitar amps. When placed between a guitar amp and a speaker, its resistors convert the amp's electric power into heat. This method guarantees to protect the audio signal.

"The passive principle guarantees an accurate sound reproduction without any influence on the frequency response curve," explains SPL Project Manager, Jens Gronwald. "So you could say that the Reducer is neutral."

The amp output impedance can be set to 4, 8, or 16Ω. Reduction is stepwise in the first stages, after which it can be adjusted continuously.

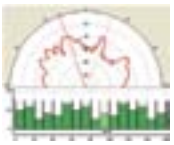
www.spl.info

FIELD REPORT

Teddy Riley, the Producer of some of Michael Jackson's posthumous work, has spoken out in support of PreSonus' Studio One production software. "You will never get a writer's block with this software," he commented. "It makes me want to do something and make a bunch of music."
www.presonus.com

NEW PRODUCT

AFMG has developed Reflex, a software package that calculates acoustical scattering and diffusion of sound waves by geometrical structures. It is designed to save time and money by optimising diffusing room treatments for small to mid-sized critical listening spaces.



www.afmg.eu

NEW PRODUCT

JZ Microphones has released its new LDC Vintage 12 condenser microphone. The new microphone is based on AKG's C12. The LDC Vintage 12 replaces the tubes of the C12 with high quality transistors to simplify maintenance and care issues.

www.jzmic.com

NEW PRODUCT

steinberg

Steinberg has released Hypnotic Dance, a new VST Sound Instrument Set with synth sounds and pre-sets tailored to the latest HALion line-up. The Hypnotic Dance add-on is now available exclusively as a download for Windows and Mac OS X from the Steinberg Online Shop.
www.steinberg.net

SSL AT THE ZOO

Californian production facility The Zoo has chosen a 48-channel Solid State Logic Duality SE console to upgrade Studio A. "You need the best tools to attract the best people," commented Producer David 'D1' Watson. "Duality is one of the tools that appeals to them."
www.solid-state-logic.com

NEW PRODUCT

Zero-G has compiled eight sound libraries from UK Sound Designer Ian Boddy's most recent work to form Odyssey, a bundle of ambiences, soundscapes, drones, loops, single hits, and FX for film sound and dance music production.
www.timespace.com

NEW PARTNERSHIP

Time+Space has been appointed as the official worldwide distributor of UK sample library developers, Freshtone. The first release under Time+Space has already been announced. Lost Tapes Vol 1 is a collection of 43 Funk and Soul construction kits, all recorded to tape using only mics, instruments, and equipment from the sixties and seventies.
www.timespace.com

Manifold Recording has Vision

North Carolina's Manifold Recording is due to open this month. The new studio began construction in early 2008 and is situated on 16 acres of green space.

Studio Designer and Acoustician Wes Lachot began working on Manifold's layout in 2006. He designed the entire studio space around the engineering board's equilateral listening triangle.

"I designed Manifold's Studio A to be quite a large tracking room," explained Lachot. "These kinds of rooms are rarely built anymore, but they allow for such a beautiful acoustic sound. We felt that the room really deserved to have a top-rate analogue console. Nothing else would do it justice."

To this end, studio co-owner Michael Tiemann installed a 64-channel API Vision console. "With the API Vision now installed in the control room, the true genius of Wes's design is evident," he commented. "The console is perfectly proportioned, perfectly situated, and perfectly comfortable in its new surroundings. Many control rooms have more consoles than they can comfortably fit in the available space. Some rooms have too little console space. We have a perfect balance that inspires confidence and creativity."

www.manifoldrecording.com
www.apiaudio.com

Cubase Elements 6

Steinberg has released the latest entry-level version of its flagship music production software. Cubase Elements 6 is the smallest retail version to complete the latest Cubase lineup, offering a comprehensive feature set at a reduced price. Cubase Elements 6 is available as boxed version from authorised Steinberg resellers, or as a boxed or download version from the Steinberg Online Shop.

With a maximum of 64 MIDI tracks and 48 audio tracks, with full 24-bit resolution and 96kHz sampling rate plus cross-platform 32-bit and native 64-bit compatibility with Windows 7 and Mac OS X Snow Leopard, Cubase Elements 6 turns any computer into a powerful music production system. It comprises an array of quality features ranging from studio-grade effects to high-value content, and incorporates the award-winning 32-bit floating-point Steinberg audio engine with flexible routing and fully automatic delay compensation.
www.steinberg.net

SUBSCRIBER PRIZE DRAW

Congratulations to Andreas Carlsen in Denmark, who is this month's lucky winner of the *Audio Media* subscribers' prize draw. Each month throughout 2011, one randomly selected subscriber will win an sE 4400a microphone. To be entered into the draw, you must have a current digital or print subscription. To get one, go online to the address below. Good luck!
www.audiomedia.com/subscribe.html

NEW PARTNERSHIP

HHB has been appointed as the exclusive distributor of Mogami cable in Ireland and the UK. Popular amongst major recording facilities around the world, Mogami's product range encompasses microphone, speaker, guitar, coaxial, video, and digital interfacing cables, along with analogue and digital snakes.
www.hhb.co.uk

PRODUCT UPDATE

Merging Technologies has released the latest version of its Pyramix 7 software. The SP3 brings a whole host of bug fixes and feature enhancements, including the new R-128 loudness spec for Final Check, and VST stability enhancements.Merging is offering this update free of charge to all version 7 users.
www.merging.com

Yamaha Aids and Abets Eurovision 2011

The 2011 Eurovision Song Contest was probably one of the finest displays of uni-cycling Moldovan fairies and hyperactive Irish twins of the year. So far. However, none of this would have been possible without an audio system featuring 20 Yamaha digital mixing consoles. Thank you Yamaha.

Redundancy was extremely important, as the show was being broadcast live and there were only 45 seconds scheduled between acts. Therefore, each of the main consoles had a duplicate backup in place. Two PM1Ds were used for monitors, two PM5Ds for the main front of house mix, two PM5Ds for the vocal effects mix, and two more for the continuity mix between acts. Separate PM1Ds mixed the performance by Stefan Raab and Jan Delay during the intermission while the votes came in. A further PM1D was located in a rehearsal room, but no one told the performers.
www.yamahacommercialaudio.com

Roland's Highland Fling

BBC Scotland now owns the UK's largest single inventory of Roland digital audio consoles. BBC Scotland was one of the early adopters of the M-400 V-Mixing System, the first digital console design from the Roland Systems Group, and now has four units in regular use. One M-400 is installed in a satellite truck, together with an S-1608 stage box, where it is used for live radio and television reports for BBC Scotland and contributions to the national network.
www.roland.co.uk

NEW REDBOXES AT BROADCAST ASIA

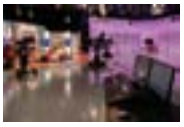
Sonifex is showing a new addition to its popular Redbox range of products on stand 4T2-06 at Broadcast Asia this year. The RB-VHEDD8 is a 3G/HD/SD-SDI Dolby E Encoder & Embedder. Dolby E encodes up to eight channels of audio into two channels of an AES digital audio stream.

Also on show will be the new Redbox RB-DDA22 digital audio distribution amplifier. The RB-DDA22 is designed to accept one of five different digital inputs and output to 22 digital audio outputs of five different connector types.

Broadcast Asia 2011 will take place in Singapore from June 21-24.
www.sonifex.co.uk

STUDIO NEWS

BYU Broadcasting is home to Brigham Young University's broadcast channels. The university's Provo, UT campus went live recently with a new state of the art facility designed by Russ Berger Design Group that is now broadcasting to a global audience.



www.rbdg.com

BELGIAN DISTRIBUTION

Heynen, a professional supplier of media processing applications, has formed an agreement with Belgian broadcasting organisation RTBF for the supply and integration of Soundcraft Studer audio mixing consoles for the radio studios of Brussels, Liege, and Charleroi.
www.harman.com

MODERN ARSENALS

Sound Mixer Stephen A. Tibbo has been using an arsenal of Lectrosonics wireless systems on the Emmy Award winning US series Modern Family.

"The Lectrosonics equipment sounds great and performs beautifully for us," comments Tibbo. "If one of the boom operators misses a line, I can count on it being picked up on one of the iso-tracks that I record."
www.lectrosonics.com

OMNIA IS THE ONE FOR WYOMING

Sean Tovin of Wyoming Public Radio recently purchased an Omnia ONE to trial it as part of a full processing upgrade for all of the 27 transmitters of Wyoming Public Radio statewide. "With all of these locations, we have to watch our budget," explained Tovin. "I am drawing up the budget right now for many more Omnia ONEs throughout the state."
www.omniaaudio.com

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INSTALLATION NEWS

HHB's post-focused Soho outpost Scrub has supplied ITV Studios with its first Avid ICON console. The 16-fader D-Control console is accompanied by a Pro Tools HD system and Media Composer Video Satellite to form the centrepiece of the upgraded Sound Dubbing 4 facility at ITV's London Studios.
www.hhb.co.uk/scrub

TOP FILMMAKERS HEADLINE EDITFEST NY

EditFest New York is set to be bigger and better than ever this year, with top filmmaker Andrew Weisblum (*Black Swan, The Wrestler*) and Pixar Animation Studios Editor Ken Schretzmann (*Toy Story 3, Cars*) headlining an impressive list of confirmed panellists. "It's great to step out of the cutting room and see there's a whole community out there that shares your passion," commented Schretzmann.
www.mewshop.com

Celemony Wows Beethoven

Celemony Software is due to release a new music restoration program this month. It is intended to restore archived recordings that have been rendered useless by wow and flutter. Capstan detects wow and flutter by analysing the musical material itself, so the medium is of no relevance. This means that it still works even if the tape has already been copied several times or digitised only in low resolution. Capstan is based on the patented Direct Note Access technology made famous by Melodyne.

Whilst the precise detection of the wow and flutter represents the technological breakthrough, repairing the recording is relatively simple. The musical material is played back with the velocity curve inverted, thus avoiding unwanted artifacts.

During its test phase, the program was used to restore a 1954 recording of Wilhelm Furtwängler conducting Beethoven's Ninth Symphony. "Even to this day, the interpretation is regarded as perfect," related Celemony's Mathis Nitschke, " but the same unfortunately could no longer be said of the tape, chronic wow and flutter and even a momentary tape freeze having hitherto spoilt the enjoyment. Thanks to Capstan, a restored version will now be released in 2012."
www.capstan.celemony.com

Major Cedar Cambridge Upgrade

Cedar Audio's CEDAR Cambridge V7 is now available. The new version represents the most significant upgrade to the system since its launch in 2003. Amongst the updated features are a new file processing architecture and report generation, designed for users with large bodies of material to process. The system is also now able to import MP3 files directly and to extract audio from video formats. Cue points and regions have also been introduced to allow users to attach text to the audio and to set up multiple regions for rendering.
www.cedaraudio.com

MIXBUS 2.0

Harrison is set to launch a major update to its Mixbus system. Mixbus 2.0 incorporates numerous features and fixes that were requested by mixers in every genre.

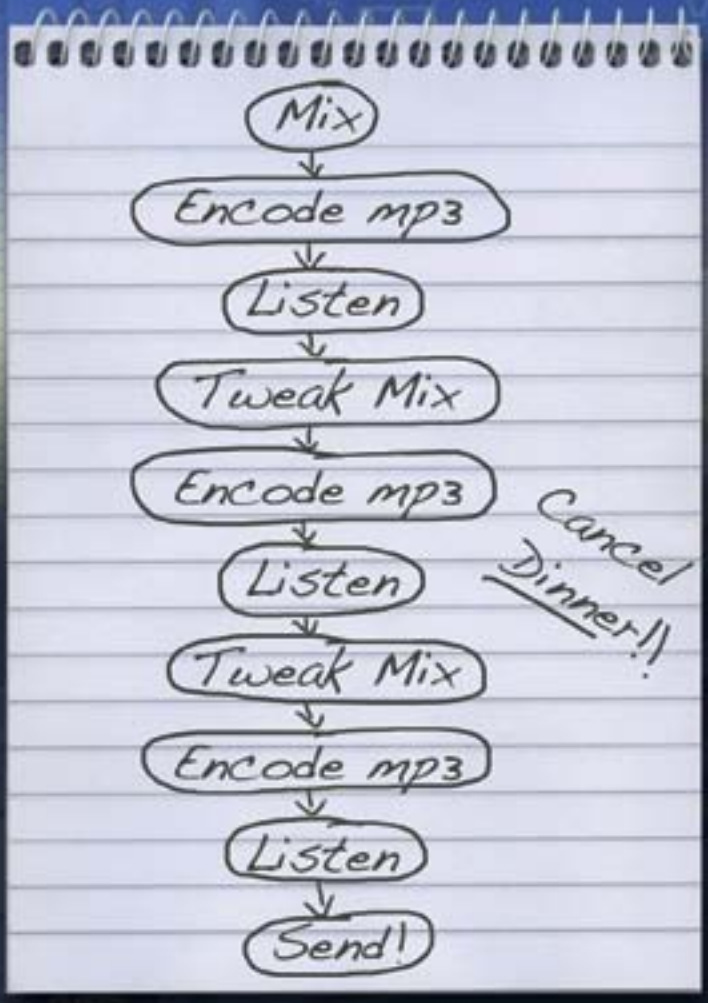
The focus of the update is on refining the operation of Mixbus to make it faster and more stable to use creatively.
www.harrisonconsoles.com

INSTALLATION NEWS

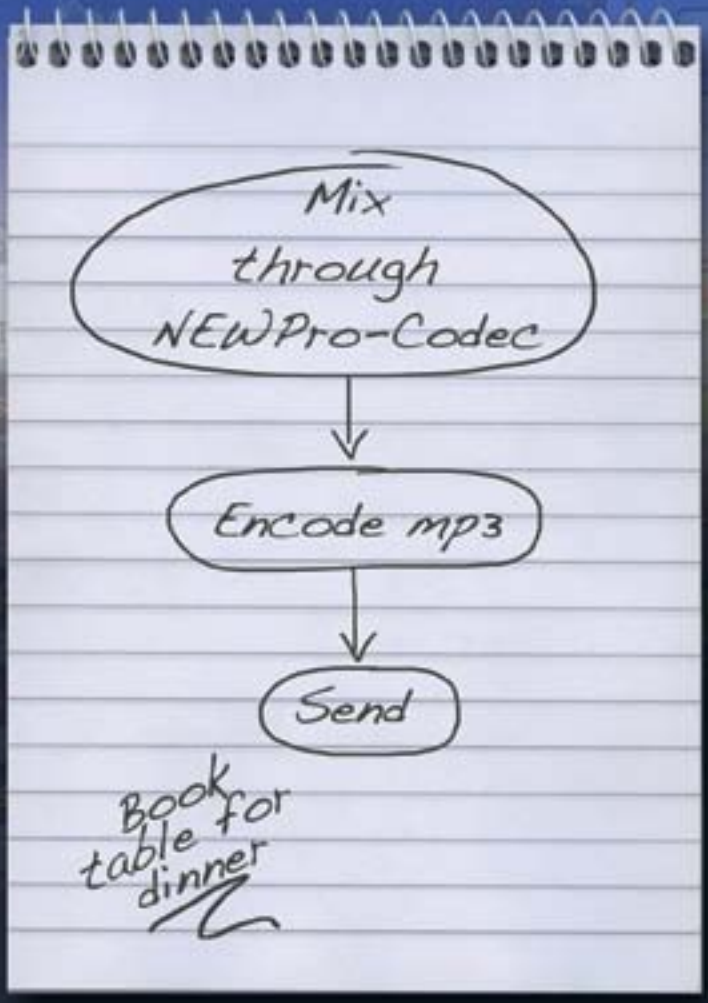
As part of overall improvements to the entire production facility at ARTE G.E.I.E's Strasbourg headquarters, the current audio post-production system has been upgraded to incorporate fifteen eight-fader Lawo Crystal consoles. "The crystal is fast and easy to operate, which enables our editors to get up and running quickly," commented Project Manager Olivier Erb.
www.lawo.de

Audio Encoding Changed for Good

Old way to encode audio



New way to encode audio



Real Time Codec Auditioning

The Sonnox Fraunhofer Pro-Codec makes it possible, for the first time, to audition and encode to multiple formats in real time within a DAW environment. Maximum fidelity is assured, as the Pro-Codec helps create compensated mixes optimized towards specific target codecs for final coding and online distribution.

- All major codecs supported: mp3, AAC, lossless codecs etc.
- Comprehensive auditioning with glitchless switching
- AB and ABX mode for blind statistical testing
- High resolution display and extensive metering
- Real time encoding, plus offline encoding and decoding

Fraunhofer IIS

For more details and a free demo visit:
www.sonnoxplugins.com/procodec

Sonnox

STANDING OVATION AT INFOCOMM

Switzerland's Merging Technologies will showcase its Ovation Media and Show Sequencer at Orlando's InfoComm 2011. Ovation is a new product that harnesses the MassCore audio engine from Merging's Pyramix Virtual Studio. Ovation combines complex audio and control firing with automated summing, routing, and mixing, all of which can be controlled remotely with an approachable interface. InfoComm takes place in Orlando, Florida, from June 11-17, with exhibits from 15-17. Merging's full product range will be on show at booth 162.
www.merging.com/ovation

GENELEC TO SHOW 4040A AT INFOCOMM

Genelec will be showcasing the 4040A, a new model in its 4000 Series range of active two-way loudspeakers at Infocomm 2011. The new model is designed for the professional installation market, and incorporates new features for use in larger conference rooms and auditoria. Special attention has also been given to reducing microphone feedback wherever possible. A controlled directivity pattern allows for more gain before microphone feedback becomes an issue. Genelec will exhibit at booth 170.
www.genelec.com

Orbital Tangoes By Night

Orbital Sound has supplied a sound system for the UK tour of Midnight Tango, a dance spectacular featuring Strictly Come Dancing stars Vincent Simone and Flavia Cacace. Sound Designer Gareth Owen employed a scalable system based on d&b audiotechnik T-Series loudspeakers, to cater for the tour's variety of venue capacities and acoustics. Gareth's design challenge was two-fold, involving creating a system that could handle the score's huge dynamic range, while also delivering consistent results across the tour's many venues.

"Midnight Tango is a very classy dance show," explains Owen, "and depends as much on the score's dynamic impact as it does on its impressive choreography. I was interested in trying the T-series as a viable solution for the project, but was concerned that it might prove a bit too much of a compromise – perhaps not quite appropriate for the smallest venues, and not sufficiently capable of handling the largest theatres. But that concern was unfounded, at both extremes – the results are astonishing."

Working alongside Gareth on the tour are Head of Sound Andy Johnson, Sound No. 2 Will Jonkler, and Production Engineer Chris Mace.
www.orbitalsound.com

Yamaha Launches VS Series

Yamaha is adding to its collection of installation loudspeakers with the launch of its VS Series. Available from early autumn, the VS series will be available in two models; the VS4 and VS6, both of which are available in either black or white finishes with weatherproof enclosures that meet the industry standard IEC60529 IPX3 rating.

The VS4 features a 4-inch driver and the VS6 a 6.5-inch driver, both also including a 1-inch balanced dome tweeter for superb clarity at higher frequencies. Internally mounted transformers allow them to operate in 70V or 100V distributed sound systems, while an overload protection circuit is provided to protect the speaker components. Both units can be installed horizontally or vertically, using an included colour-matched steel U-bracket.

The new loudspeakers are suitable for a wide variety of settings, but their compact, unobtrusive design makes them particularly well suited to installations where the audio system needs to blend in with the venue.
www.yamahacommercialaudio.com

SOUNDCRAFT ROCKS THE DONAUFESTIVAL

Soundworx FOH Engineer Michael Schmidt requested Soundcraft's Vi6 console for the Donaufestival, an Austrian music festival. Schmidt was first introduced to the Vi6 at this year's Prolight+Sound. The console was also specified by many of the visiting sound engineers.
www.harman.com

FIELD REPORT

Dutch sound rental company, Story Sound, has purchased a battery of over 70 Harman Crown I-Tech HD series amplifiers. The decision to move to I-Tech HD amplifiers was partially motivated by the availability of the new Harman HiQnet Performance Manager software.

www.harman.com

BUILDING BRIDGES WITH LAB X

Lab X Technologies has granted Biamp Systems a license to utilise its IEEE 802.1 AVB Audio Platform for use on Xilinx FPGAs. Lab X's AVB Audio Platform offers manufacturers high-channel capacity audio implementation based on the international standards of networked connectivity.
www.labxtechnologies.com

FIELD REPORT

UK boyband The Wanted have completed their first headline tour, with 12 dates in theatres and arenas throughout the UK. Sennheiser's ew 500-935 G3 wireless microphones and ew 300 G3 GB in-ear monitors ensured that the boys were heard over the hordes of screaming girls.
www.sennheiser.co.uk

THE VOICE CHOOSES NEXO

NEXO's new 45°N-12 stage monitors have been deployed for Russell Watson's UK tour. The English tenor has been touring with SSE Audio Group, to promote his first album since recovering from multiple brain tumors.
www.nexo-sa.com

NEW PRODUCTS

Blue Microphones has extended its microphone expertise to the stage with the recently released enCORE series. The series includes a range of mics designed that meet the needs of live and recording applications. The new microphones feature resilient steel grilles and a reinforced chassis.
www.bluemic.com/live

FIELD REPORT

Schubert Systems Group, a leading provider of audio for touring sound, has purchased one Midas PRO9 and two PRO6 digital consoles, augmented with the Klark Teknik DN9331 Rapide rack-mountable remotes with motorised faders to operate the console's graphic EQs.
www.midasconsoles.com
www.schubertsystems.com

FIELD REPORT

ADLIB has supplied a V-DOSC sound system, DJ set and crew for David Guetta's UK tour. Guetta's FOH Sound Engineer Hassane Es Siahi came onboard last August at the start of a festival tour, which was also serviced by ADLIB.
www.adlibsolutions.co.uk

CinemaxX Rolls out the Meyer Sound EXperience

CinemaxX AG, a European cinema chain headquartered in Germany, has announced plans to equip a total of 60 screens throughout Germany and Denmark with Meyer Sound EXP cinema loudspeaker systems. The audio upgrade program is scheduled for completion by 2013.

"With Meyer Sound EXP, we have an audio component that is fully equal to the 4K digital image," says Christian Gisy, CinemaxX CEO. "Investing in EXP already has proven to be a wise decision, and working with Meyer Sound has been an absolute joy."

The self-powered EXP cinema systems include Acheron screen channel loudspeakers, coupled with Acheron LF low frequency screen channel loudspeakers. Also included are X-800C cinema subwoofers and HMS-10 surround loudspeakers, with precise digital optimization by the Galileo loudspeaker management system.

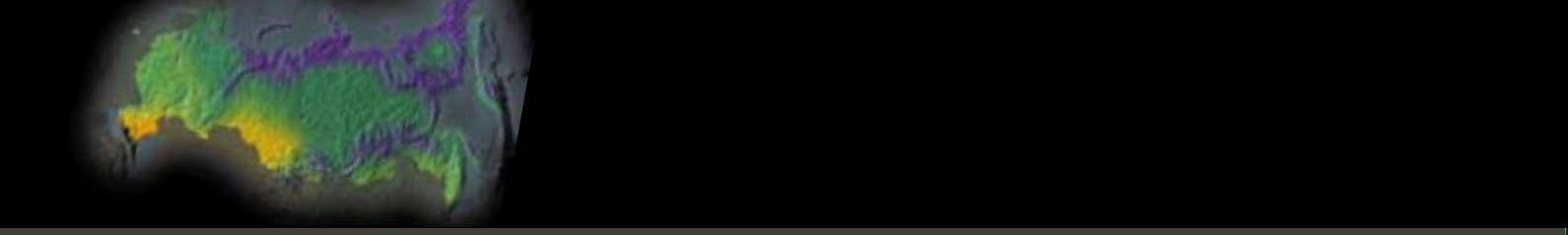
Meyer also recently installed its first EXP system in a commercial Californian cinema for Pacific Theatres Winnetka 21.
www.meyersound.com

DiGiCo on Tour with Kylie Minogue

Matt Napier is Monitor Engineer for Kylie Minogue and has been with her since the summer of 2010. His mixing console of choice is a DiGiCo SD7, chosen because it is a desk that can grow as the tour's remit expands.

"We're at the end of the UK leg of the Aphrodite – Les Folies tour and heading off to America," says Napier. "The SD7 has done a fantastic job so far. It's done everything we hoped for."

The console, part of audio supplier Solotech's inventory for the tour, is currently running at just 60% of its capability. There are approximately 86 inputs from stage and, with the addition of talkback and effects returns, the channel count runs to around 110. There are 14 stereo and six mono sends for effects subs and thumpers, plus several stereo mic groups, which are used for shout mics around the stage, and a 16x12 matrix, used for backups and spurs.
www.digico.biz



EAW in Action in Siberia

Situated in the far Siberian city of Yakutsk, located just 450 kilometres south of the Arctic Circle, a new entertainment complex known as Europe opened this spring.

The complex is set over five floors and the technical infrastructure was designed and installed by MS-Max – drawing heavily on components from the EAW catalogue.

Above the ground floor pub and sports bar are an Italian restaurant, a billiards room and café, while the Striptease nightclub spans floors three and four (along with a Karaoke bar) – and up on the top floor are bowling lanes.

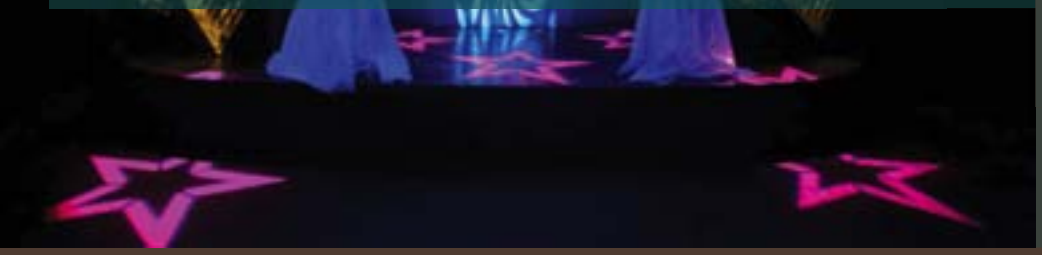
MS-Max supplied a punchy EAW dance system in the form of the purpose designed Avalon Series. This consists of a pair of enclosures, complemented by 10 rectangular UB82, eight BH760 bent horn subwoofers, four LA212 monitor speakers, four FR129z 12-in LF, and four SM129z compact single 12-inch speakers. EAW's CAZ Series amplifiers and UX8800 and DX1208 rackmount digital processors are prominent among the control devices.

Elsewhere in the complex MS-Max have provided 10 EAW NTL720 ultra compact, self-powered, three-way line array elements, a pair of SB1000 subs, and 24 SMS4 rear speakers. Reference monitoring is in the form of four SM129z and two SM159z compact floor wedges, while EAW CAZ Series amps and UX8800 and DX1208 rackmount DSPs again help to optimise the system.

In Striptease, a pair of EAW FR129z 12-in LF provides the main playback, along with three Micro-Subs, eight JF60z and six JF80z, with CAZ Series amplification and DX1208 digital control.

Sound reinforcement in the karaoke room is in the form of a pair each of self-powered NT29 offering 90-degree horizontal dispersion and 12-inch woofer, and matched NTS22 sub – with a FR129z providing further infill – all powered by EAW CAZ series amplifiers.

Elsewhere further EAW FR129z, FR250z, CIS300, CIS400, CIS65, SMS4, and CAZ Series amplification are featured heavily among the armoury of audio devices that serve the bowling, sports bars, billiards room, and other areas such as the brewery.



Billionaire Buys Warner

Warner Music has been bought by an industrial group whose holdings range from oil and aluminium firms to the UK's Top Up TV. Access Industries, run by Russian born billionaire Len Blavatnik, paid $3.3bn (£2bn) in cash for the world's third largest music firm.

He is not the first Russian billionaire to buy into Western media businesses. That honour goes to Alexander Lebedev, who owns the Independent and London Evening Standard newspapers. But Mr Blavatnik's ambitions could soon dwarf those of his compatriot if, as rumoured, he goes on to bid for Warner's troubled rival EMI.

Warner Music Group, whose entire music and publishing businesses have been sold, will become a private company with its shares delisted from the New York Stock Exchange.

Chairman Edgar Bronfman said Access Industries was "supportive of the company's vision, growth strategy and artists, while bringing a fresh entrepreneurial perspective and expertise in technology and media".

"Most importantly, Access supports Warner Music's commitment to our recording artists and songwriters who are the foundation of our current and future success," he said.

Lab-gruppen at The Gorka Club

Lab.gruppen distributor and major Russian systems contractor, MS-Max based in Moscow, has recently completed a substantial entertainment complex installation using Lab.gruppen amplifiers from a number of different ranges.

The Gorka Club in the ancient Russian city of Yaroslavl is located some 250km north-east of Moscow. Also known as 'The Hill' after the ski hill that adorns part of the roof space of the complex, the Gorka Club in Yaroslavl is a substantial multi-level venue comprising the Hill nightclub, bowling lanes, a sports bar, and a billiards club on the lower ground level; a sophisticated city café/bar, a number of 'European' themed restaurants and a shopping area occupy the ground floor, whilst the roof space has been designated as a large, landscaped children's play area incorporating the famous ski hill and a cafe for weary parents.

The Lab.gruppen component of this enormous installation is principally to serve the nightclub, which also doubles as a live venue. Lab.gruppen FP+ Series amplifiers were selected to drive the main EAW KF730 line array dance system where the main criteria were for solid power and 100% reliability. A variety of C Series dedicated installation amplifiers were chosen to power the other EAW systems throughout the venue serving the chill-out areas, the bar, several VIP areas, and of course the bathrooms and jacuzzi.

VITAL STATISTICS – THE NETHERLANDS

FULL NAME	Russian Federation
POPULATION	140.3 million (UN, 2010)
CAPITAL	Moscow
AREA	17 million sq km
MAJOR LANGUAGE	Russian
MONETARY UNIT	1 rouble = 100 kopecks
MAIN EXPORTS	Oil and oil products, natural gas, wood and wood products, metals, chemicals, weapons and military equipment
GNI PER CAPITA	US $9,370 (World Bank, 2009)
INTERNET DOMAIN	.ru
INTERNATIONAL DIALLING CODE	+7

Dynacord on the Road Again

The Dynacord Road Show recently visited four Russian cities, the first, the nation's capital, Moscow, being followed by Rostov on Don, Samara, and St Petersburg in that order, with some 200 dealers and pro audio professionals participating.

In addition to detailed product demonstrations – featuring, inter alia, the Corus Evolution loudspeaker series and the PowerMate3 – the Russian Dynacord partner Dealer Centre conducted seminars offering tips and tricks designed to simplify and enhance the day-to-day work of those in the industry. Opportunities for discussion are another important element of the Road Show concept, so time was set aside for detailed consideration of the needs of, and questions posed by, individuals attending the events.

"The tour was highly successful," reports Natalia Petrukhina, Dealer Centre's Marketing Manager. "In view of the fact that those attending were absolute experts, who followed the demonstrations with trained and critical ears, the outstanding response to the systems demonstrated was extremely gratifying and indicated the enormous potential of Dynacord in the Russian market."

Along with the PowerMate3, it was the Corus Evolution series that most impressed Russian experts, according to Petrukhina. "The concept of compact, reliable, and powerful loudspeaker systems representing outstanding value for money found unhesitating acceptance in all four cities."

The response to the road show was so positive that plans are already being made to repeat the exercise. In the spring, it is planned to visit cities in the Urals, whilst the names of various Siberian conurbations have already been pencilled into the calendar for the summer months.

Conservatory Restoration

As part of its current restoration, the Moscow Conservatory has purchased a Studer Vista 9 digital console for recording, post-production, and broadcast from its Great Hall, as well as a Soundcraft Vi1 digital console for multi-purpose use, including at front of house when required.

The Moscow Conservatory was founded in 1866 by Russian musician Nikolai Rubinstein. It has established itself as one of the world's most renowned institutions of musical education. With a seating capacity of 1,737.

The Moscow Conservatory purchased a 42-fader Vista 9 console that will be utilised for recording, post-production, and direct transmissions. It will also have a connection position for OB vans.

Alexey Pogarsky, Sound Engineer from the Studio of Moscow Conservatory comments, "For over 40 years both for Soviet and Russian sound engineers, the word 'Studer' has been a symbol of robust equipment with the highest sound quality, working flexibility, and excellent design. The Conservatory has had A80 and A810 tape machines, and also an A962 mixer by Studer. This equipment is still used today, some of it quite extensively."

MEDIA MATTERS

Russian TV is dominated by channels that are either run directly by the state or owned by companies with close links to the Kremlin. The government controls Channel One and Russia One, while state-controlled energy giant Gazprom owns NTV. Critics say independent reporting has suffered as a result.

TV is the main news source for most Russians. There is a fast-growing pay-TV market, led by satellite broadcaster Tricolor. The government is undertaking a project to bring digital TV to every Russian home.

An international English-language satellite news TV, RT, is state-funded and aims to present "global news from a Russian perspective".

Hundreds of radio stations crowd the dial, around 40 in Moscow alone. The market leader is privately-owned music station Russkoye Radio.

Around 59.7 million Russians use the Internet (Internetworldstats, June 2010). The web is less tightly controlled than traditional media, and opposition forces have found a home online.

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Tuesday 19 July

The forward-looking Evolve conference focuses on all that is new in game development - new platforms, new technologies and new markets.

Evolve will help developers tackle the issues arising from emerging platforms and digital marketplaces, connected gaming, user-generated content, and the crossover between games and Internet services.

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NEW!

Thursday 21 July

The new **Indie Dev Day** designed specifically for independent developers offers tons of sessions, a chance to meet publishers and mix with other indies. Plus, **Indie Showcase:** a dedicated area within the Develop Expo (20-21 July) featuring some of the most exciting and new indie projects currently under development.

21 JULY 2011
audio day

Speakers include:

Audio Track Chair:
John Broomhall, Audio Content Provider and Independent Audio Director & Consultant

Audio Vision – Creating AAA Sound, Music & Dialogue For Alan Wake
Mark Yeend, Microsoft Game Studios, Head of Audio

News From The Front: A Year In MGS Central Audio
Kristofor Mellroth,Senior Audio Director and Mark Yeend, Head of Audio Microsoft Game Studios

NGP: Redefining Portable Game Audio
Jason Page, Senior Manager, R&D Audio Department, Sony Computer Entertainment Europe,

Voicing Games: The Keys To Unlock Believable Performance
Mark Estdale, OMUK, Casting & Voice Director

Sound Psychology :Using Subliminal Sound To Prime The Subconscious Mind
Alex Joseph, Senior Sound Designer and Producer

www.developconference.com

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Organised by: tandem events

Festival Sound

KEVIN HILTON looks at the ways in which sound is monitored at festivals today, a long cry from a suited man with a monitoring device wandering the muddy fields.

Twenty years ago a music-loving friend of mine remarked that he couldn't understand why anyone ever considered holding open-air festivals in the UK because, in his words, "the weather's not built for it". This strangely conceived statement was all the stranger because we were at the 1991 Cambridge Folk Festival, baked by the late summer sun.

Other events held that year were less fortunate. The much-publicised performance by Luciano Pavarotti in Hyde Park was staged only two days after Cambridge but was plagued by driving rain. The expectation would be that opera fans – or at least the middle-class people who liked Nessun Dorma – would be better behaved than rock fans. But even there, there were those at the back of the crowd, who started throwing drink cans at the people who put up umbrellas.

Still, that's how festivals have been since the early days. In 1962 trombonist and bandleader Chris Barber observed, "Jazz festivals are the biggest gamble I know… they may be washed out by the rain or invaded by trouble makers more interested in rough-house than rhythm. I love jazz festivals."

I Predict A Riot...

Controlling the crowd and guaranteeing their safety at these events was at one time almost as difficult as predicting the weather. At the 1968 National Jazz and Blues Festival (before it became the Reading Rock Festival) 74 people were injured when the roof of the stage collapsed during a performance by the Crazy World of Arthur Brown.

More tragically two young fans were killed in a crush during a performance by Guns 'n' Roses at the 1988 Monsters of Rock Festival at Castle Donnington (now succeeded by the Download Festival). This highlighted the baffling fact that there was no single set of standards for staging, running, and policing/marshalling big outdoor music events.

In the 1980s and early '90s many sound hire companies based in London relied on the outdated Pop Code. This had been drawn up in 1976 by the Greater London Council (GLC), which itself was part of history by the '90s, having been abolished in 1986 by the Thatcher government. Many in the live sound and staging sector worked with local authorities and the Health and Safety Executive (HSE) to create a successor to the Pop Code. This eventually appeared in 1993 as the Guide to Health, Safety, and Welfare at Pop Concerts and Other Outdoor Events. The document was revised in 1999, and last year the HSE announced that a further revision was planned, although no date has been set.

The Guide to Health, Safety, and Welfare at Pop Concerts, etc, primarily covers the organisation and running of events, but also includes the contentious area of sound levels. This is now further covered by the Control of Noise at Work Regulations, which came into force for Great Britain on April 6, 2006. These are designed to protect those working in any environment where there are high levels of noise. Entertainment also comes under these rulings to safeguard those working in clubs and at concert venues.

Monitoring Men

Even before 1993 those in the live sound business in the UK noticed that the Environmental Health officers of local councils were getting stricter in dealing with sound levels. These officials were not difficult to spot at festivals; they were usually wearing suits and carrying an obvious measuring device.

Mark Murphy, an Associate Director at Vanguardia Consulting, says the situation is now very different: "Now we have to do a lot of sound modelling beforehand to look at how the coverage and sound work in an arena or festival site. There are factors like how much breakout there will be from the sound system, so we work with the audio companies to come up with a design that optimises the site."

Vanguardia specialises in sound, noise, acoustics, and audio-visual design. It has worked on many of the leading UK festivals, including Hyde Park Calling, Wireless, Reading, Creamfield, Download, and the Isle of Wight.

Murphy comments that the planning for big live events has changed dramatically because the software packages being used today were not available even ten years ago. These include the EASE program, which, like others produced by loudspeaker manufacturers including Nexo, d&b, and L Acoustics, enable a 3D model of a festival site to be created. This is then used to predict how sound will behave in the space at certain levels.

This is particularly crucial with the new breed of urban events, including V, the Clapham Weekender, T in the Park, and Wireless, which are held in the middle of cities or towns.

Britannia Row Productions works on the Wireless Festival. Company Director Mike Lowe says that like most promoters today, Live Nation, which runs Wireless, hires its own acoustical consultants to measure sound levels and works alongside Brit Row engineers and environmental health officers. He comments that the engineers share the available information, enabling them to control the volume effectively.

All this a world away from the 1976 Reading Festival when 36 local residents complained about the noise produced by AC/DC, The Enid, Ted Nugent, Manfred Mann's Earth Band, and Osibisa. They must have really been belting it out as, if memory serves, the old Riverside site where the Festival took place wasn't that close to any houses.

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Game Audio Leaders Gather For *Develop* 2011

This year's **Develop in Brighton Conference**, which boasts *Audio Media* magazine as media partner, takes place July 19-21 at the Hilton Brighton Metropole, providing the European game development community a valued opportunity to meet and learn from each other, share experiences, be inspired by world renowned experts, get up-to-date with the latest development tools and techniques, make new contacts and catch up with old ones.

The popular one-day audio track is scheduled for **Thursday, July 21,** and will feature a raft of presentations on game audio-related topics by leading audio talent from around the globe.

For full programme details and booking information, visit: www.developconference.com

Meanwhile, here's a selection of what's on offer:

Sony Playstation's Kovats To Headline Develop Conference Audio Track

Sony Playstation's award-winning Sound Designer and Audio Director PHIL KOVATS will give the audio keynote speech at this year's Develop Conference in Brighton on Thursday, July 21.

Kovat's career encompasses successful stints in television post-production on well-known shows like *Power Rangers In Space*, and *Sabrina, the Teenage Witch*.

Latterly however, he has focused on videogames working for Sony Playstation on such iconic hit videogame titles as the *God Of War* series and the highly acclaimed *Uncharted 2*.

Audio Track Chair, John Broomhall told *Audio Media:* "Playstation audio is something Sony's creative teams around the globe take extremely seriously. Phil is a considerable talent and his work on titles such as Uncharted is second-to-none – so we're absolutely chuffed to bits to be welcoming him to Develop. He comes straight from the cutting edge of videogame audio production with masses of experience to share. I am really looking forward to hearing his 'audio vision' for sound, music and dialogue in the next generation of video games as well as hearing object lessons arising from the huge game hits already under his belt."

NGP: Redefining Portable Game Audio

Jason Page
Senior Manager. SCEE R&D Audio Department Sony Computer Entertainment Europe Limited

Sony's new 'next generation portable' videogame console promises not just a step change but a revolution in handheld game audio.

In something of a conference coup, this must-attend session presented by senior Sony Playstation audio guru, Jason page, offers a rare and valuable opportunity to get the audio SP on NGP. Page will highlight key technical capabilities of this brand new gaming format outlining such features as channel count, processing and CPU, memory, DSP effects, codecs and devtools – also pointing to how he thinks audio for the platform is likely to develop in future.

News From The Front: A Year In MGS Central Audio

Kristofor Mellroth, *Senior Audio Director, MGS*
Mark Yeend, *Head Of Audio, MGS*

In a wide-ranging session highlighting a diverse mixture of key development issues, two of Microsoft Game Studios' senior audio staff will discuss their recent experiences and lessons learned whilst working on such signature titles as *Fable 3*, *Crackdown 2*, *Kinect Adventures*, *Toy Soldiers,* and *Alan Wake*.

Covering such topics as working with composers, the state of the freelance industry, supporting independent game devs, audio team structures, developing for Kinect, central production and distributed development, they promise to 'tell it like it is' and explore future business and production strategies.

Sound Psychology: Using Subliminal Sound To Prime The Subconscious Mind

Alex Joseph
Senior Sound Designer and Producer – movie credits include Casino Royale, Mamma Mia, Harry Potter 1-4

Alex has a continuing interest in the relationship between the physicality of sound and how we as humans perceive it.

He believes passionately the sound post-production process can build on the effectiveness of the script, to truly delve into the audience psyche.

In a thought-provoking session he will explore what games can learn from film and its established commonly-used psychological approaches and tricks, and in particular will examine how subliminal sound can be used to prime the subconscious mind to enhance the gaming experience.

Creating Rockstar's Audio Tech

Alastair MacGregor
Lead Audio Programmer, Rockstar North

In the rarefied game development atmosphere of Rockstar Games, Alastair MacGregor enjoys the privilege of creating audio technology for some of the biggest selling global hit videogame titles of all time. Rockstar's hugely critically acclaimed games such as *GTA IV* and *Red Dead Redemption* are technically brilliant – including the audio systems and content.

In a must-see session, as well as talking about their general approach in developing creative audio technology, MacGregor will pull the curtains back to unveil interesting elements from Rockstar's audio tools, pipeline, and run-time engine – and show how the team made the most of them, using actual implementation/asset examples from key titles.

What's The Score? The Art And Science Of Interactive Videogame Music

Jason Graves *Composer,* Dead Space

Jason Graves' spine-chilling interactive music score for Dead Space won him a BAFTA, a place in game music history and critical acclaim from both peers and punters alike. But his work in music for interactive entertainment encompasses dozens of other productions to which he has brought and continues to bring unbridled passion and enthusiasm as well as finely honed composition skills. This session is a rare opportunity to hear the maestro in Europe outlining his quest for excellence in creating interactive music.

Other speakers include **Mark Estdale**, Casting 7& Voice Director of OMUK, Mark Yend (Head Of Audio, MGS), and *Audio Media's* own regular contributors **Jerry Ibbotson** and **John Broomhall.**

Prism Sound

Portable, versatile and unbeatable sound!'
Joshua Blair and Mark Ronson (Sphere studios)

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SIMON TILLBROOK reckons that you could do a whole lot worse than adding a pair of 527's to your daily Lunchbox.

I have recently returned from a trip to Nashville where I once again enjoyed working on an API console with other peripheral API processors.

It always puts a smile on my face when I get the opportunity to properly reacquaint myself with API and the wonderful musical way its range of products works in such a wide variety of scenarios.

API has adopted the 500 series modules in a big way, producing both a selection of modules and hosts.

API 527

Compressor/Limiter

Taking A Look

For me to look at, this time, is the API 527 Compressor/Limiter. This is a single 500 series slot VCA based compressor that shares design aspects primarily from the company's 225 and 2500 compressors.

Connections are simply XLR sockets for both input and output, with no external sidechain connections available. If you have a pair of API 527 units you can solder a link on the host unit's main circuit board, and activate a link switch on the front face of the API 527 for such operation.

The API 527 Compressor/Limiter uses the 2510 and 2520 op amps along with a large output transformer. Looking at the unit, before slotting into the host, you can see the usual API quality with all surface mounted components on the boards.

Looking at the front face of the API 527, you are greeted with the familiar colour combinations and control shapes that tell you instantly that you are in front of a unit from API.

From the top, we have a ten segment LED meter that can be switched to show either gain reduction or act as a VU. This small toggle switch is immediately below the meter and, when in GR mode, the scale to the left of the LED meter runs from -1.5dB to -23dB and, when set to VU, the right scale starts at -20 and goes through to +3VU.

The maximum input and output levels that the API 527 can accept are +26dBu, and there is an overload LED that illuminates at +27dBu.

To the right of the LED metering we have a series of rotary controls dealing with the various parameters of the API 527. An output level control with a very wide continuous range from infinity to +10dB sits above the threshold with a fully variable selection from +10dBu to -20dBu.

Attack and release parameters are adjusted with a dual concentric rotary control that allows variation of the attack time from 1 millisecond to 25 milliseconds, and release from 0.3 seconds to 3 seconds.

The final rotary control under the dual concentric pot is your ratio. This can be set from 1:1 to infinity.

As well as the meter and link switches, the API 527 has three further toggle switches and an illuminated in/out hard relay bypass switch.

The first of the toggle switches is a hard/soft compression curve knee selector typical of many such dynamic devices available.

The next function of the API 527 is something that has been taken from the company's 2500 bus compressor. This toggles between new and old referring to the method of detection. 'New' configures the sidechain circuit to accept the input signal to an RMS detector. This is generally referred to as feed-forward and is most common in modern VCA compressor designs. When set to 'Old', the sidechain is configured for feed-back detection. In this state, the API 527 takes the sidechain signal from the unit's output that is the design approach we see on older compressors.

The Thrust switch, when engaged, places a HPF with 3dB per octave slope at 1kHz immediately before the RMS detection. The idea here is to maintain the low frequency integrity by reducing the sensitivity of the signal coming into the sidechain to low frequency signals that are often of high amplitude. So the mids and highs still receive the dynamic control that is intended, but reduces excessive reduction to the low end maintaining more natural depth and punch.

Use

If you are not too familiar with API consoles or processors then a quick look over the front panel of the API 527 is a must. Some people do find that the layout initially appears a little tight and cluttered, but this feeling soon evaporates when you start to use it. The controls feel intuitive when you are into your stride, and are solidly put together.

Again if you are aquainted with the 225 compressor from API consoles or other units, then the API 527 will be familiar. The sound of the API 527 when used conjures up words like 'clean', 'clear', 'transparent', 'punchy', and so on.

Setting up the API 527 on your signal is fast, finding the desired results through the parameter controls easily. The resulting sound is always robust. You do not feel the API 527 losing grip of the signal.

When you start to use more extreme processing then the addition of the Old/New and Thrust facilities makes more and more sense. Utilising the API 527 with various drum and bus compression examples, you appreciate how much the Thrust function maintains the low punch to your sound even with extreme settings.

I think it is fair to say that when dialing in more aggressive setups with the API 527 you need to exercise a little more finesse with your parameter control, but results come just as well.

With bus compression, especially, I found having both Old and New options (along with hard/soft knee curves) gave me a wide sonic range. I only had two API 527 units to really try this out, but you can't have everything!

Conclusion

As a fan of API consoles, I found the API 527 a joy to use across the applications I tested it with, from simple light duties through to more aggressive tasks.

The facilities borrowed from other API units have been well chosen and offer greater sonic possibilities, which is what I would want from a peripheral processor.

If you have the means then a pair of API 527 Compressor/Limiters in your Lunchbox would be a real productive addition.

INFORMATION

£ GB£750.00 (exc.VAT)
Ⓐ Automated Processes, Inc. 8301 Patuxent Range Road Jessup, MD 20794 USA
Ⓣ +1 301 776 7879
Ⓦ www.apiaudio.com
Ⓐ UK Distributor: KMR Audio, 1375 High Road, Whetstone, London, N20 9LN
Ⓣ +44 (0) 208 445 2446
Ⓦ www.kmraudio.com

THE REVIEWER

SIMON TILLBROOK is the Principal Music Tutor at Islington Music Workshop in London. The rest of his time is spent as a freelance engineer, mainly in the USA.

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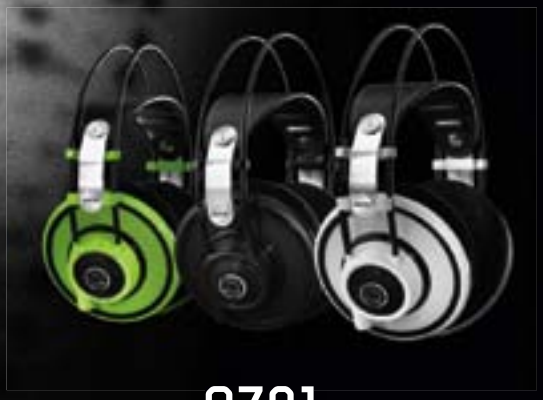

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HARMAN

AUDIO-TECHNICA BP4002

Omni-directional Microphone

Natural and neutral, the Audio-Technica BP4002 is a meritable contender in the growing reporter's microphone field says ALISTAIR McGHEE.

When Beyer introduced its excellent M58 hand held reporter's mic I was appalled. Didn't they know that Shure would forever 'own' the number 58 in the world of microphones? Didn't they know that the SM58 is the only microphone in the history of the world to be named in a song? (And there's 58 brownie points if you can name that song!). I suppose the Beyer naming department figured that no FOH guy would ever provide The Boss with an omni hand held reporter's mic, and on that basis a bit of numeric resonance would be a good thing.

I'm not sure if the same idea is behind the naming of Audio-Technica's new venture into the world of the hand held ENG/reporter's microphones, the BP4002. If you're an old git (like me) you can remember the doyen of reporters mics, the STC 4037 (a mic you could defend yourself with should the interview turn nasty), and if not you will get a bit of a buzz out of the 40xx connection to DPA's wondrous microphones. To be fair to Audio-Technica, it does have a well established 40-stylie product of its own in the 4040. I've just bought two.

So the evolution of the handheld from where I stand goes 4037, EV 635, and Beyer M58. This has nothing to do with quality, just what we were buying. However we hit a snag with the onset of awful minidisk recorders – their mic amps were even worse than their ethos. And the 58 was a bit on the low output side. We dallied with the MCE version but batteries and reporters don't mix, and that confusing on/off switch was too much for new journalists already struggling to come to terms with the pedal bin. So we went out hunting and came back with the Sennheiser MD 46. Nice shiny finish, cardioid, and one louder. That was seven or eight years ago and the 46 and 58 have lived happily side-by-side since.

However, Audio-Technica has had a foot in this door for a while with its 8004 omni, but despite having a long version, suitable for that all important mic flag, the A-T hasn't quite forced its way in on the reckoning. And of course that is the reasoning behind the BP4002. It's long, it's omni, it's very well finished, and it's bang in the price range of the German offerings.

Making Comparisons

I'm glad I started with that whole SM58/M58 thing because A-T claims that it's imported some unique mechanical characteristics from its stage mics into the build of the BP4002 – something about back cavities that sounded all too medical for my liking. Anyway, the 4002 is handsome mic and looks altogether the business. Beyer has long supplied the M58 in a Nextel paint finish that looks and feels great, but suffers mightily when you force it into a mic clip that is too small, or indeed, apply copious amounts of camera tape. I know you're not supposed to do either of those things but life isn't always fair. The 4002 will laugh in the face of adhesive tape and actually comes with a mic clip of its own. Bonus to A-T – and if they change from plastic to a brass 3/8ths insert, that will be two bonuses.

When the 4002 arrived I was still wrestling with the Sennheiser HD800s, so I sent it out with Clive 'the voice' Roderick for a quick spin. Clive returned happy but not overwhelmed – he was 'whelmed', I'd say. I think the sticker inside the XLR that proudly proclaimed 'Taiwan' reduced his whelm a gnats. However when I asked would he rather it said 'China', he could see my point.

Having disposed of the high-end cans I turned my attention to the BP4002. I suppose an omni is the easiest design: no vents, or slits, or other fancy things, just your best transducer in a sealed box. It's a big ask (as we now say in Welsh rugby) to get a moving coil to accurately cover 20 to 20, but these days 40 to 14 will do me just fine. For ther record, the BP4002 frequency response is 80-20KHz.

Setting up the 4002 and 58 side by side produced some interesting results. I gave the 4002 the edge on neutrality, while the 58 had better 'cut through'. I checked the frequency response curves and learnt not very much. The 58 has a broad lift at 2k and a bump just above 5. The 4002 is flatter to 3k, bumps at 4, and then has two more bells before 10k.

Listening back I felt the 4002 to be more neutral and more natural, but for intelligibility the 58 holds the higher ground. From 'a what it sounds like' point of view, either would make a good choice. If pushed I would plump for the 4002, but if I spent all my time recording against aggressively noisy backgrounds the M58 would be a better bet. The 58 seemed to resist pops marginally better, while the 4002 won out against wind noise – but again there wasn't much to choose between them. Handling noise was also close, but all that work Audio-Technica has done on its back cavity seems to have paid off putting the 4002 just ahead.

Conclusion

The reporter's mic market is not exactly a hotbed of activity constantly flooded with new products, so the BP4002 (there's also a 4001 the cardioid brother) is an interesting addition to the established options available. I suppose the legendary reliability of EV, Sennheiser, and Beyer mean that few replacements get sold – and of course here the jury is out on the 4002. It's just not been around long enough to build that sort of reputation. This segment of the market isn't as big as the MI end of the studio mic product range, so there will always be less going on, which makes Audio-Technica's interest all the more welcome. I think the BP4002 is a worthy choice in a well-finished package.

INFORMATION

£ **GB£189.00 (inc.VAT)**

Ⓐ **Audio-Technica UK, Technica House Royal London Industrial Estate, Old Lane, Leeds, LS11 8AG.**
Ⓣ **+44 (0) 113 277 1441**
Ⓦ **www.audio-technica.com**

THE REVIEWER

ALISTAIR MCGHEE began audio life in Hi-Fi before joining the BBC as an audio engineer. After ten years in radio and TV, he moved to production. When BBC Choice started, he pioneered personal digital production in television. Alistair is now Assistant Editor, BBC Radio Wales, but is allowed out occasionally.

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DANGEROUS MUSIC BAX EQ

Mastering and Mix Buss Shelving EQ

This shelving stereo equaliser is operationally sleek and pleasing in tonality: it's simply "all about feel," offers ALAN SILVERMAN.

Dangerous Music's BAX EQ is a highly refined professional interpretation using shelving filter topologies introduced by British audio engineer P. J. Baxandall in his classic paper Negative Feedback Tone Control, first published in Wireless World, October 1952. The design was seminal; it was the first tone shaping circuit where levels could be controlled by a single potentiometer without the need for a switch to select boost or cut. The simplicity and sonic quality of the design led to its deployment as the 'tone control' in countless high-fidelity preamplifiers. The design had characteristics that made it especially suitable for musical tone shaping – extremely smooth, flat shelves, and minimal phase shift. The filter components reside in the feedback loop, leaving the main signal path pure. Dangerous Music's Lead Designer, Chris Muth, has skillfully exploited these advantages to create an exceptional mastering-grade analog stereo EQ.

Features

The feature set on the BAX is simple and straightforward; there is a low cut, low shelf, high cut, and high shelf. Frequency points are linked for both channels while boost/cut levels can be set independently for left and right. This allows for M/S operation in conjunction with an external sum and difference matrix, as well as individual channel tailoring. All controls are stepped and the corresponding internal component values are hard-switched via a network of 40 relays. The circuitry is built from high-quality parts, selected after a year's worth of listening with the goal of tight tolerances and musicality. All capacitors in the signal path are film-type, not ceramic. The elaborate relay-switching scheme ensures that the shelving slopes remain constant as the corner frequencies are changed. Values are dialed in with eight-position rotary switches for frequency and 21-position rotaries in 0.5 dB steps for level. Low cut points range from 12Hz to 54Hz, low shelves from 74Hz to 364Hz, high shelves from 1.6kHz to 18kHz, and high cuts from 7.5kHz to 70kHz. The sub-sonic and ultra-sonic points are intended to keep the audio band clean without side effects.

In Use

At first, the frequency values on the shelves seemed counter-intuitive; they are specified with the values in the middle of the slopes rather than at the corners. The reason behind this is the gentleness of the slopes. It is this gentleness that contributes to the BAX's extraordinary musicality. The phase shift is kept to less than five degrees for a 1dB change, and tonal effects are heard far from the nominal values well into the mid-range. It is remarkable how an EQ so simply laid out can be so versatile and effective. The top-end is capable of an effortless air while the mid-range is smoothly enhanced. The low-end can create a 'solid-as-a-rock' bass while warming vocals. The BAX is all about feel; it mysteriously imparts improved sonic appeal without aggressively impacting the original tonality of a mix. It can do this while neatly sidestepping two of the thorniest recording problems: thickness in the low-mids and harshness in the upper-mids. My other equalisers took on new characteristics when freed by the BAX from the heavy lifting, resulting in a range of new colours.

My first in-session use was on a well-mixed big band project. The mix engineer had mastered the project but the artist felt there was more potential, so the un-mastered mixes were sent over. The BAX delivered – and it delivered fast. There's something fantastic about interacting with a great analogue EQ. The sweet spot came into focus quickly. It seemed too easy. My usual five-band analog parametric EQ remained un-patched. The BAX proved itself as a true 'program equalizer' in the tradition of the classic mastering EQs of simpler times. Add some nice top and bottom... and done: the ref garnered an enthusiastic approval from the artist with no change.

Next up was an attended mastering session with singer-songwriter JD Souther who traveled from Nashville to New York for the date. JD had recorded what he felt was a personal best album and was deeply invested in every aspect of the production. JD and I had never worked together before and both his manager and the label's A&R executive were at the session. No pressure. The BAX delivered a deep bass and an open airy presence. My standard EQ was then free to handle a few notches to sweeten the vocal. After the first playback you could hear a pin drop. Following what seemed to me a very long minute, JD said, "What's wrong with that?" and we were on our way. On the second tune, JD asked for a 1/2dB more bass. How fun was it to just reach for the BAX, twist one quick click, hit play, and see appreciation in an artist's eyes?

With the BAX, a 0.5 dB click amounts to a lot, thanks to the gradual slopes of the shelves. The BAX seems to do more with less, giving a track a finished polish with only a few touches. Running the shelves in conjunction with the cut filters leads to a surprisingly flexible range of curves. When used in conjunction with the low-cut filter, the low shelf can tame a tubby bass as well as flesh out a thin one. The high-cut filter serves to sweeten the top end when the upper shelf is used for a mid-range lift. The device seems very transparent with negligible insertion loss.

Summary

I have been having a blast with the BAX and feel grateful to be able to benefit from the years of research and development that Chris Muth did while serving as Technical Director at Sterling Sound. During his time there, he ripped apart and improved just about every bit of equipment that came through the door. Chris is also a mastering engineer in his own right and, apparently, he finally built an EQ that even he could love. The BAX EQ is affordably priced well below its high level of quality. It's like a delicious dessert with no calories.

INFORMATION

£ **GB£1,977 (exc. VAT)**

Ⓐ **231 Stevens Rd. Edmeston, NY 13335**
Ⓣ **+1 607 965 8011**
Ⓦ **www.dangerousmusic.com**

THE REVIEWER

NYC-based Mastering Engineer Alan Silverman is a two-time Grammy nominee in the Album of the Year category for mastering. arfdigital.com

RYCOTE PORTABLE RECORDER AUDIO KIT

Windshield & Suspension Solution

JERRY IBBOTSON can cast aside his man-in-a-shed-made tripod, for Rycote has come up with a pro solution for keeping handling noise to a minimum.

Great minds do think alike. When I tested the Olympus LS5 portable recorder, many moons ago, I explained how I'd fashioned a hand grip for it out of a mini camera tripod. This was to tackle the bugbear that afflicts an awful lot of handheld devices: handling noise. Virtually all the pocket-sized recorders I've tested in the past few years have had problems with the very hand product and I can see it being used by radio journalists in a scrum, as well as sound effects monkeys like myself. Combined with the Windjammer, it turns a handheld machine like the Olympus into a much more serious and confidence-inspiring package.

Now, who wants to buy an old mini-tripod? One (fairly) careful owner...

that holds them, which defeats their very purpose in being. But I'd found a small tripod at the bottom of my desk drawer and screwed it into the quarter-inch thread in the base of the Olympus. It worked but it looked a bit... err.

Those geniuses at Rycote now offer a proper solution. Their Portable Recorder Suspension kit makes my offering look decidedly amateurish. There's the same threaded mounting but it's attached to a floating base, using two sections of curved plastic that act like springs. This is Rycote's patented Lyre design, which I've seen before in some of its microphone windshield kits.

In the base of the mount is a swivelling section with a male thread, onto which I screwed the Extension Handle. This has a metal core and a foam rubber outer; a bit like a handlebar grip. Once in place it promises to drastically reduce the amount of handling noise that gets through to the recorder. By the way, you can replace the handle with a boom pole or a supplied hotshoe adaptor, which lets you fit your machine to a video camera or DSLR. The latter is a growing area, with more and more people shooting on DSLRs and needing some way to capture quality audio at the same time.

I was more interested in how it would perform in the hand, so to speak. My trust mini-tripod-grip-thing did manage to cut down on some handling sound, but not all of it. Given the relative complexity of the Rycote, I was hoping it would do a much better job.

The first time I used it was to record the sounds of a thunderstorm that rumbled over the farm in which my studio is based. This is precisely the kind of task that many pocket recorders get used for: pick-up-and-go sessions where you need to seize the initiative before whatever's making the noise packs up and moves off. Standing by an open door, as the rain lashed down and the wind rapped on my knuckles, I was glad I'd also fitted the Windjammer, which I first picked up when I reviewed the Olympus. After a few minutes the rain slowed and stopped and I retired to the studio. The recording was copied across and played back and I have to say there was no handling sound whatsoever. I had deliberately not kept my hand stock-still, partly just to test it and partly to capture rain landing in different puddles. But none of my hand and body movements have come through at all.

It's a really neat bit of kit. Rycote claims the plastic is virtually indestructible and, while I've no intention of testing that, I can say that build quality is first class. It reeks of a professional

INFORMATION

- £ GB£83.20 (exc.VAT)
- Ⓐ Rycote, Libby's Drive, Slad Road, Stroud, Glos, GL5 1RN
- Ⓣ +44 (0) 1453 759338
- Ⓦ www.rycote.com

THE REVIEWER

JERRY IBBOTSON runs Media Mill, a York-based audio production company started in 2000 that specialises in sound for video games. Prior to this, Jerry was a BBC journalist for ten years, ending his spell with the Beeb as a reporter and newsreader at Radio One Newsbeat.

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SENNHEISER HD800

Professional Studio Headphones

The best headphones he's ever had? ALISTAIR McGHEE thinks it quite possible with the latest top-of-the-range offering from Sennheiser.

How much is too much? I know it's uncouth to raise the subject of money especially at the very start of a review, but let's make no bones about it – at a thousand pounds a pair, the HD800 is an expensive product.

Sennheiser of course has a track record of making excellent headphones across a wide range of applications and at a whole spectrum of price points. Leading the way at the top end of the book have been the HD600s and the HD650s. These are often found in the classical music world where high degrees of neutrality are required.

While the 650 was very much an evolution of the 600, the 800 is a totally new beast. First the 800 has totally new diaphragms, which Sennheiser claims are the biggest of any currently available headphones. There's high spec materials everywhere, and most welcome new connectors on the cable inputs ("specially-designed, four-wire, high-performance connections with Teflon insulation") into those big drivers. The cable itself features Kevlar, OFC copper, and is hand-forged in the fires of Mount Doom – you get the picture. Best of all it is wonderfully sleeved in a weave that reminds me of the old STC bakelite cans of blessed memory.

Stylistically the 800 is very much the headphone for the discerning Cyberman: big, silver, and sporting a form that cries both, "I follow function", and, "I am a very serious headphone, – stand back". I found them very comfortable in use.

Though the HD800s are 300Ω and not too tricky a load, they make no concessions to mini-jack culture. The supplied type A jack is a full strength quarter-incher that defies iPod and other mobile devices. Sennheiser does, however, supply a big to mini convertor, but I guess it's a careful man (or one unfamiliar with the principle of the lever) who plugs this into a delicate piece of portable plastic.

Sounding Out

So what do they sound like? Fantastic. Detailed, articulate, unfatiguing, and able to square the circle of delivering high quality monitoring without being at all tiring. Neutrality and listenability in one package. Some reviewers have found the HD800s capable of speaker-like imaging. Well, for me there's less of the left, centre, right that characterises most headphones but I would probably say that while they're better than the competition they're still drivers strapped to your head.

So apart from the price what's not to like? Well, they are very definitely open-backed. As I wound them up nice and loud, I received an email from a colleague on the other side of the office complementing me on the sound of my new headphones. Closer up, one of my esteemed colleagues felt he wanted more bottom end, but I disagree – I think other cans probably tip up the bass. I have some very good headphones from Beyer, Audio Technica, and Ultrasone – they cost from a hundred pounds to about two fifty. They do the job and are a pleasure to use, but these Sennheisers are better.

Are the HD 800s the best headphones I've ever heard? Well, I remember back in the mists loving the Stax Sigma electrostatics. I quickly checked the net – the latest model the Omega runs out at fifteen hundred pounds, or three thousand if you want an amp you can actually plug them into. Which makes HD 800s a bargain.

INFORMATION

£ GBP TBA

Ⓐ Sennheiser UK Ltd., 3 Century Point, Halifax Road, High Wycombe, Bucks, HP12 3SL
Ⓣ +44 (0) 1494 551551
Ⓦ www.hd800.co.uk

THE REVIEWER

ALISTAIR McGHEE began audio life in Hi-Fi before joining the BBC as an audio engineer. After ten years in radio and TV, he moved to production. When BBC Choice started, he pioneered personal digital production in television. Alistair is now Assistant Editor, BBC Radio Wales, but is allowed out occasionally.

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SOUND IS EVERYTHING

DAVID MACKENZIE talks to Sound Designer John Kassab about his latest award-winning efforts…

The Lost Thing is an animated short film based on the book by Shaun Tan and narrated by Comedian Tim Minchin. The film follows a boy as he searches for a home for a bizarre and wonderful creature that he comes across in an bleak and repetitious industrial landscape.

1836 original sound recordings were made in the production of The Lost Thing, which has already amassed a trove of awards including an Australian Screen Sound Guild Award and the 2011 Oscar for Best Animated Short.

Sound Designer John Kassab was responsible for forming the film's otherworldly locations and fantastical part mechanical, part organic creatures.

The Lost Thing

Directors
Andrew Ruhemann & Shaun Tan
Composer
Michael Yezerski
Sound Designer
John Kassab
Foley Artist / Sound Editor
Adrian Medhurst
Foley Engineer / Sound Editor
Daniel Varricchio
Sound Effects Recordist
Bart Bee
Re-recording Mixer
Doron Kipen
Post Production Mix Facility
Music and Effects
Mixer
Doron Kipen
Narration Recordists
Brendan Croxon & Pepper Post (UK)
Post Production
Digital Pictures

David MacKenzie: We'd like to know about your main audio brief for the film. Were you given a specific approach, or did the ideas evolve during the project?

JK: Shaun had recorded a bunch of sounds from round his house using a domestic camera and layered them into the film using i-movie. Although his track was quite rough, it gave me a good indication of the type of aesthetic he was going for. It was mechanical, clucky, steam powered, metallic, cold and stark. In contrast to this, the world he depicted is also quite expansive and playful.

Although he was pretty open for me to go exploring, I knew I had to keep it away from sounding too digital or electronic and I also needed to steer away from nature. There are no trees in this world and the only animals depicted in are wooden cut-out seagulls on the beach and a domesticated (read: mass-produced) dog on a chain lead.

With Sound Effects Recordist Bart Bee, we ran around the factories, oil refineries and industrial beaches in the middle of the night and got the hums, steam blasts, water laps and chugs heard in the film. We also managed to find great distant impacts from shipping crates lowered onto trucks, cars passing over bridges, and other similar sounds which to me conveyed the sense of an expansive industrial world with heavy disasters taking place in the distance all around.

I hoped that by applying a distant objectivity to the way these sounds are presented in the final film, the sound could reinforce the overall tone of apathy depicted in characters of that world. As if to say "something really terrible is happening over there but we are safe over here".

DM: With such an emphasis on finding new sounds, were there any that presented a particular challenge?

JK: Interestingly, the film's bells were probably the hardest sound to resolve on the entire track. It was imperative to get right because these were his most distinctive sound and visual cue. They are also used to signify his off-screen movements in much the same way you can hear a cat approaching from its collar bell. They are also used to punctuate the creature's performance, humour, and communication.

There really are just so many bells out there and each has a different weight, tone, texture, decay and timbre. Some worked for some shots and not for others, some fit the emotion but not the animation and vice versa. The final bell sound was a bit weird at first because we had heard so many versions before it, like a good friend who has a different voice every time you catch up.

DM: Was there something particularly unique about the brief that meant libraries were out of the question?

JK: I think sound libraries are awesome and there are certainly some collections like Tim Prebble's Hiss and Roar series which can add wonderful fuel to the fire. However, my philosophy is that if you are going to use something, make it your own.

Because this project spanned 13 months and only went for 15 minutes screen time, the opportunity was there to go heavy on the recordings, experiments, and research. Having said this, I will admit that quite a few library SFX did make their way into the track – but they were heavily mutilated and I hope are quite unrecognisable.

I also used a number of sounds the Director Shaun recorded with his domestic video camera microphone from props found around his house. Whilst I re-recorded most of his concepts again using pro gear, some of his recordings managed to capture a wonderful 'character' which I was not able to replicate in my recordings, so I just lifted them off his track and stirred them into the mix. I believe that if it's a great sound, who cares that it was not recorded using a $4000 microphone at 192khz. If it works, it works and it's welcome on my track. Having said that, nice gear is nice.

DM: How did you develop the sound signatures for the main creature?

JK: About 40% of all recordings on this film were made to capture the sound of the main creature we affectionately refer to as 'LT' [Lost Thing]. The sound of LT is the result of a wonderful collaboration with Adelaide based Foley artist, Adrian Medhurst. Our main direction from Shaun was that he was part elephant, part puppy, part crab, and part iron boiler. He weighs several tonnes, has over 40 moving parts, and is made of 12 different textures –but he is also playful and light on his feet. As you can imagine, this direction presented us with both an incredible challenge as well as a wonderful site for experimentation and play.

LT was designed as part a three-stage process. First Adrian recorded all of the hinges, draws, three versions of the feet, a few options for the large iron lid/mouth on the head and a metallic body churn – equivalent to a fabric rustle track in the traditional sense of Foley. Second, I explored the sounds of his internal mechanics, vocalisations and reactions using recordings I had made, soft synths, and audio plug-ins. When our efforts were combined, what resulted in the early ▸

phases was a very mechanical, almost robotic, sounding creature. At that stage, I felt we had lost the kind nature and essence of the creature depicted in Shaun's book. He had evolved way too much into a machine during this process and I felt that this was going to hinder the intended empathetic response we wanted from the audience.

So, the third stage involved toning it back massively and using the sounds we had made to tastefully colour, but not overwhelm, the creature and using pitch and texture plug-ins on various elements to take the edge off. I ended up using most of the sounds we recorded at one point or another in the final mix, just not all at the same time.

DM: The film features a number of semi organic, semi mechanical creatures. How did you combine the two?

JK: These creatures are the organification of discarded bits of hard rubbish rejected by the ordered society. Finding vocalisations for these creatures posed a number of creative and technical challenges.

I was really inspired by how the monster roars of the original Godzilla (1954) were created. To achieve the mass and piercing presence of the beast, the Japanese sound team lead by Ichirô Minawa recoded the reverb created from the sound of rubbing a resin-coated leather glove along the strings of a double bass. This encouraged me to seek character vocalisations that sound organic in nature but are sourced from inanimate objects.

I found that the most effective way of addressing this was to explore sounds inspired by the texture of any given creature. For example, many of LT's vocalisations are linked visually to the movement of his iron crab like eyes. In reference to the texture of the creature, and in sync with the expressions on the eyes, we were able to capture and compliment the emotion and character of creature with sighs made by squeaking a rusted old door hinge.

DM: The idea boundary between Foley and sound design is often vague at the best of times, though can be especially true for animation – indeed, some question the 'sound design' label amongst Foley and Editorial.

JK: Indeed Foley played a critical role in the creation of the final sound design and its input was priceless at pre-production. Adrian Medhurst's Foley performance on this film far exceeded the feet, handling sounds and fabric rustles Foley artist are famous for. Adrian was as keen as I was to experiment and explore the sounds of the strange creatures, locations and vehicles depicted in the film. It was during this collaboration with Adrian that most of the recordings where made.

Our distinct roles of Foley Artist and Sound Designer respectively completely overlapped during this recording period. Indeed, the track owes a lot to Adrian's incredible creative contribution. Lots of little short experiments in both of our studios lead to big libraries of sounds. As we were given a generous development period, we had the opportunity to explore the minutia of every movement onscreen – which is an extreme luxury given the unfortunate trend of shrinking post production schedules.

I also see great sound design value in the experiments as you learn a lot of new tricks about mics and props and in the end that is what makes you a better film sound person period. Although the track is a combined contribution of a number of skilled crafts people, it is ultimately the Sound Designer (or Supervising Sound Editor if that term appeals) who is accountable to the production and listening audience. You have to trust your team but you also have to trust your instinct about what will work and what wont. If you do your job right, nobody notices its existence. If anything is out, you've lost your audience, the illusion of cinema is lost and it's on you as the person who designed it to sound that way.

DM: What's distinguishes the idea of Sound Design from the other disciplines?

JK: ...I'm surprised at how popular this conversation continues to be. Coming from the short film and Indie world, the term 'Sound Designer' has meant only one thing for at least a decade. That is, the person who works with the director to design the overall sound track to helps tell his or her story. I think that the popularity of this term amongst my peers in the underground and its acceptance of it by rising directors and producers internationally will hopefully break the wave of this discussion in the near future.

In the established feature film world, there seems to be a lot of comfort and protection of this term 'Supervising Sound Editor' which perhaps aptly describes the role of some practitioners and this is totally cool if it works for everyone involved. Who am I to judge?

I tend to work with directors who really like to engage with sound people and who can convey complex sonic ideas for story telling and seek for me to collaborate on the overall aesthetic of the film through my sound work. In this role, the Supervising Sound Editor's contribution extends further than just supervising a team of sound editors. Many great directors have also been quoted to believe that sound is 50% of the film going experience and subsequently give this process a lot of attention in their filmmaking process. So as a sound person, if your creative contribution to a film is at least that of the Production and Costume designers, why not call yourself a sound designer? It is what we are doing, isn't it?

Like any designer in any field from town planning to building robots, sound designers are hired onto projects, given a design brief and are ultimately required to satisfy someone else's creative vision. Like all designers, we sound designers work with a team of specialised crafts people who all contribute to satisfy this vision.

DM: Can you think of an example that illustrates that?

JK: The beginning of the beach scene is one of my favorite sound design moments in the film. It established the environment, gives weight and personality to the characters and guides the audience hearing. This was all achieved during the pre-mix.

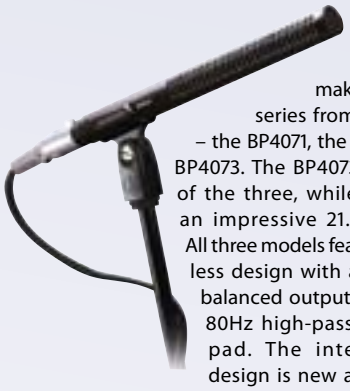
The atmosphere was layered using about a dozen tracks. I used a number of distant sounds from factories, gentle winds and water laps from an industrial beach and other small industrial highlights as my core ingredients. Like almost every atmosphere in the film, the sound pressure level of each element is in constant state of flux as to tune the audience's listening point of that of the character 'Boy' as his listening focus changes.

With every step the boy takes we hear the grainy sand compress beneath his feet and the jiggling of bottle caps the boy has collected in his bag that day. These were beautifully recorded and performed by Adrian. Whilst Adrian recorded a bunch of other layers and feet options for this character, I used only these particular sounds for the boy in this scene as they reinforced the narrative point of where he is and what he was doing at the beach that day.

Mid-Year Gear Picks

As is now traditional, we present the *Audio Media* Mid-Year Gear Picks – a selection of technological highlights for the year to date. This time, we've chosen 20 launches from the 2011 season to tickle your fancy...

Audio-Technica BP Series



Three new shotgun microphones make up the new BP series from Audio-Technica – the BP4071, the BP4071L, and the BP4073. The BP4073 is the shortest of the three, while the BP4071L is an impressive 21.22 inches long. All three models feature transformer-less design with a direct-coupled balanced output, plus switchable 80Hz high-pass filter and 10dB pad. The interference tube design is new and, on the 4071, Audio-Technica claims it provides the "same directivity as mics up to 50 percent longer."

www.audio-technica.com

Reviewed: *Audio Media* January 2010

Apogee Duet 2

Apogee's Duet 2 is an updated version of the company's USB audio interface for Mac. The new version is USB 2.0 compliant and is capable of up to 24-bit, 192kHz recording. The unit adds a full-colour OLED and assignable touchpads. It features two combination line/mic inputs, two balanced line outputs, and one quarter-inch stereo headphone output. Two microphone pre-amps provide up to 75dB of gain. The audio I/O is available on a redesigned breakout cable or via an optional breakout box.

www.apogeedigital.com

Previewed: *Audio Media* ProLight + Sound Review, May 2011

DiGiCo SD Ten/SD Ten B

DiGiCo doubled its fun this year by launching the SD Ten live digital console at Frankfurt, and the SD Ten B broadcast console at NAB, almost simultaneously. The SD Ten provides 96 channels of full processing and 48 assignable busses, and works in cahoots with the DiGiCo SD-Rack. Up to 14 racks and five redundant-engined consoles can be connected to the system. The SD Ten B adds broadcast-specific features including 37 touch-sensitive faders, four layers of ten SmartKey macros, and multi-channel 'folding', allowing configuration of stereo, LCR, 5.1, or up to 11 mono channels under a single channel strip.

www.digico.biz

Preview feature: *Audio Media* May 2011

DK Technologies DK1 & DK2

DK Technologies' latest audio metering offering is the Compact Audio Loudness Meter (CALM) available in two versions – the DK2 for 5.1 and the DK2 for stereo. The unit is "no bigger than a smartphone" and is designed to offer cost-effective metering with digital and analogue I/O from D-Sub, and comes with ITU, EBU, and ATSC loudness metering, plus other standard scales. Displays include phase correlation, loudness, Stereo Vectorscope (DK1), and StarFish Surround Display (DK2).

www.dk-technologies.com

Previewed: *Audio Media* NAB News, May 2011

DPA Modular Microphone System

The new DPA modular microphone series puts a range of Reference Standard capsules with a choice of three new preamplifiers to create a system of many variations and possibilities. All-new electronics give 120dB dynamic range and are optimised for long cable runs, and the series is claimed to exhibit "the best off-axis performance of any mic." There are currently six capsules in the range covering patterns from omni to shotgun.

www.dpamicrophones.com

Previewed: *Audio Media* ProLight + Sound Review, May 2011

Focusrite RedNet

RedNet is a new audio networking system for the professional recording facility, based on Audinate's Dante networking technology. The initial system offerings include four interfaces and a RedNet PCIe card, and uses standard Ethernet infrastructure. The interfaces include an eight-channel and 16-channel ADDA units (up to 192kHz), an eight-channel mic/line input unit, and an all-digital unit for ADAT, AES, and SPFIDF interfacing.

www.focusrite.com

Preview feature: *Audio Media* February 2011

Genelec 1238CF

This is the new tri-amped, three-way, DSP monitoring system from Genelec. It features a slim enclosure, two eight-inch bass drivers, a five-inch mid-range, and a one-inch metal dome tweeter. These are driven by multiple power amps and Genelec DSP technology, compatible with the company's loudspeaker management control software (GLM). The unit has been designed with a bass-managed system with subwoofer in mind, for medium-sized control rooms in music, post, and broadcast.

www.genelec.com

Previewed:*Audio Media* ProLight + Sound Review, May 2011

iZotope Nectar

iZoptope's Nectar is an ambitiously multi-faceted plug-in with nine main processing sections, all dedicated to the human voice. A large range of presets broken down into genres and styles helps you get started, and after that you get into the individual elements: pitch correction, breath control, gating, two compressors, saturation, de-esser, EQ, doubler, limiter, and reverb/delay. In Advanced View, all processes can be controlled, solo'd, and honed.

www.izotope.com

Reviewed: *Audio Media* February 2011

KRK KN8400

The KRK KNS8400 headphones represent excellent value for money and come with a host of pro features to entice even skeptical headphone snobs. The construction is of a durable plastic with 40mm neodymium drivers and, according to KRK, a "newly developed headphone acoustical system." The manufacturer claims an "exceedingly accurate, natural, and wide frequency response," to accompany hardware features such as a 2.5 metre cable, detachable inline volume control, replaceable cushions, and a soft carrying case.

www.krksys.com

Reviewed: *Audio Media* April 2011

Line 6 XD-V

The XD-V 2.4Ghz band wireless system from Line 6 employs several features that differentiate it from the norm. The system uses no companding, as Line 6 maintains that compromises signal quality. For reliability, the XD-V system uses 'frequency diversity' to maintain an interference-free signal (transmits on four frequencies simultaneously). The V70 handheld unit features digital emulations of six live-sound microphones, a seventh 'super' model, plus an interchangeable capsule (also on V30). Options include the V70 and V30 handheld system, V70L and V30L beltpack/lavalier system, and V70HS and V30HS beltpack/headband system.

www.line6.com

Previewed: *Audio Media* ProLight + Sound Review, May 2011

Neumann KH120

A first from this revered microphone company is its up and coming range of studio monitoring products – and the first of these was the KH120. Built from the disappearance of the Klein & Hummel brand (hence the 'KH'), the KH120 is a two-way ported active monitor with an aluminium cabinet. Features include input and output gain controls, EQ switches, and balanced XLR input.

www.neumann.com

Reviewed: *Audio Media* May 2011

PreSonus 16.0.2

PreSonus has extended the reach of its impressive StudioLive console range into the small-format market. 16.0.2 is a compact sibling but has much in common with the larger models: 24-bit 48kHz operation, 32-bit floating point processing, XMAX preamps, and two on-board effects processors. There's integrated FireWire I/O and MIDI I/O for control. The unit comes with Capture recording software for Mac and Windows, a copy of Studio One Artist DAW software, and Universal Control software. You can even download the free PreSonus SL Remote app for tablet-based control via Universal Control.

www.presonus.com

Previewed: *Audio Media* ProLight + Sound Review, May 2011

RND Portico II Stereo Bus Processor

Rupert Neve Designs showed its new Portico II Stereo Buss Processor at the recent ProLight + Sound show in Frankfurt. The unit is a stereo compressor and mastering limiter with high-voltage discrete signal paths, and a new stereo field editor design with band filtered width and depth so the mastering engineer can focus efforts on a particular range and instrument. The unit has detented continuous controls, further underlining its mastering community targeting.

www.rupertneve.com

Previewed: *Audio Media* ProLight + Sound Review, May 2011

Roland R-1000

The new Roland Systems Group R-1000 is a 48-track REAC-based recorder/player for the live market, aimed mainly for use with the expanding range of RSG digital consoles like the new M-480 and (with the S-MADI converter box) other MADI consoles. Its main uses

will be for recording live performances either for mixing later or for use in soundchecks – and for playback of multi-track backing tracks and so on. RSG says that the unit will considerably cut down the time talent needs to be on stage for soundchecks.

www.rolandsystemsgroup.co.uk

Preview Feature: ***Audio Media*** **May 2011**

SADiE 6

SADiE 6 is the all-new build of the respected UK-based DAW, now featuring the convenience of Native working and host-based processing. SADiE H Series hardware will continue to provide top-notch interfacing and processing, but version 6 is all about bringing SADiE to the masses, with VST plug-in processing leading the new feature set. SADiE's editing prowess, multiple playlists, VCS playout system, CEDAR noise reduction tools integration, background recording, and more mean that its radio, post, mastering, and sound suite flavours are new and fresh.

www.sadie.com

Reviewed: ***Audio Media*** **February 2011**

sE Electronics Egg

The Egg is a new concept in monitor design being pioneered in a joint venture between acoustician Andy Munro and sE Electronics. The basics of the system are an egg-shaped enclosure that is 'resonance neutral', and fully active crossovers with "near perfect phase and transient response". The system is active, with matched amps and drivers, though the amplifier is a separate unit to avoid compromising the enclosure design, which allows auxiliary inputs, volume control, an 'seE10' switch, a single system power switch, and more.

www.seelectronics.com

Preview Feature: ***Audio Media*** **February 2011**

Sennheiser HD800

These new open-backed, 300Ω headphones are aimed at the high-end and sport totally new diaphragms, which Sennheiser claims are the biggest of any currently available headphone. The build of these headphones is high-qualilty, from the metal, damped headband, micro-fibre ear pads, to new cable connectors and woven cable sleeving. HD800s come with a two year warranty.

www.sennheiser.com

Reviewed: ***Audio Media*** **June 2011**

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Throughout the production chain, broadcasters rely on the purity and transparency of Genelec audio monitoring. Find out why Genelec is the broadcaster's monitor of choice at www.genelec.com
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Sonnox Fraunhofer Pro Codec

The Sonnox Fraunhofer Pro Codec is a plug-in intended to allow production professionals to audition, adjust, and encode for the main compressed audio formats in an online environment. A comprehensive real-time A-B section with blind testing and statistical results, plus support for all the main formats (HD-AAC, AAC LC, HE-AAC, HE AAC v2, mp3, mpe surround, and mp3 HD. Up to five streams can be encoded and compared at the same time, with bit rate, bit rate mode, and processing speed adjustments.

www.sonnoxplugins.com

Reviewed: ***Audio Media*** **May 2011**

SSL Nucleus

The Nucleus is a controller/interface combination unit with 16 control strips and two-channel I/O via SSL SuperAnalogue preamps and a USB2 interface. Each channel strip has a fader, a V-Pot, LED data display, metering, and dedicated solo, cut, and select buttons. A central section offers transport (including shuttle wheel), monitoring control, the preamp controls, and more. The unit is supplied with MIDI and USB drivers for Windows and Max OSX, plus the Nucleus Remote and USB set-up control software – and presets of control set-ups for various DAW systems.

www.solid-state-logic.com

Reviewed: ***Audio Media*** **April 2011**

Waves OneKnob

This unusual bundle is a new and extreme take on the idea of pairing down process parameters to make things simpler for the user. As the name suggests, each plug-in in the bundle offers only one knob for control. The seven available processes are: Brighter, Phatter, Driver (distortion), Wetter (ambience), Louder (dynamic 'maximising'), Pressure (compression), and Filter (resonance). The OneKnob suite is an iLok-protected bundle available for RTAS, AU, and VST.

www.waves.com

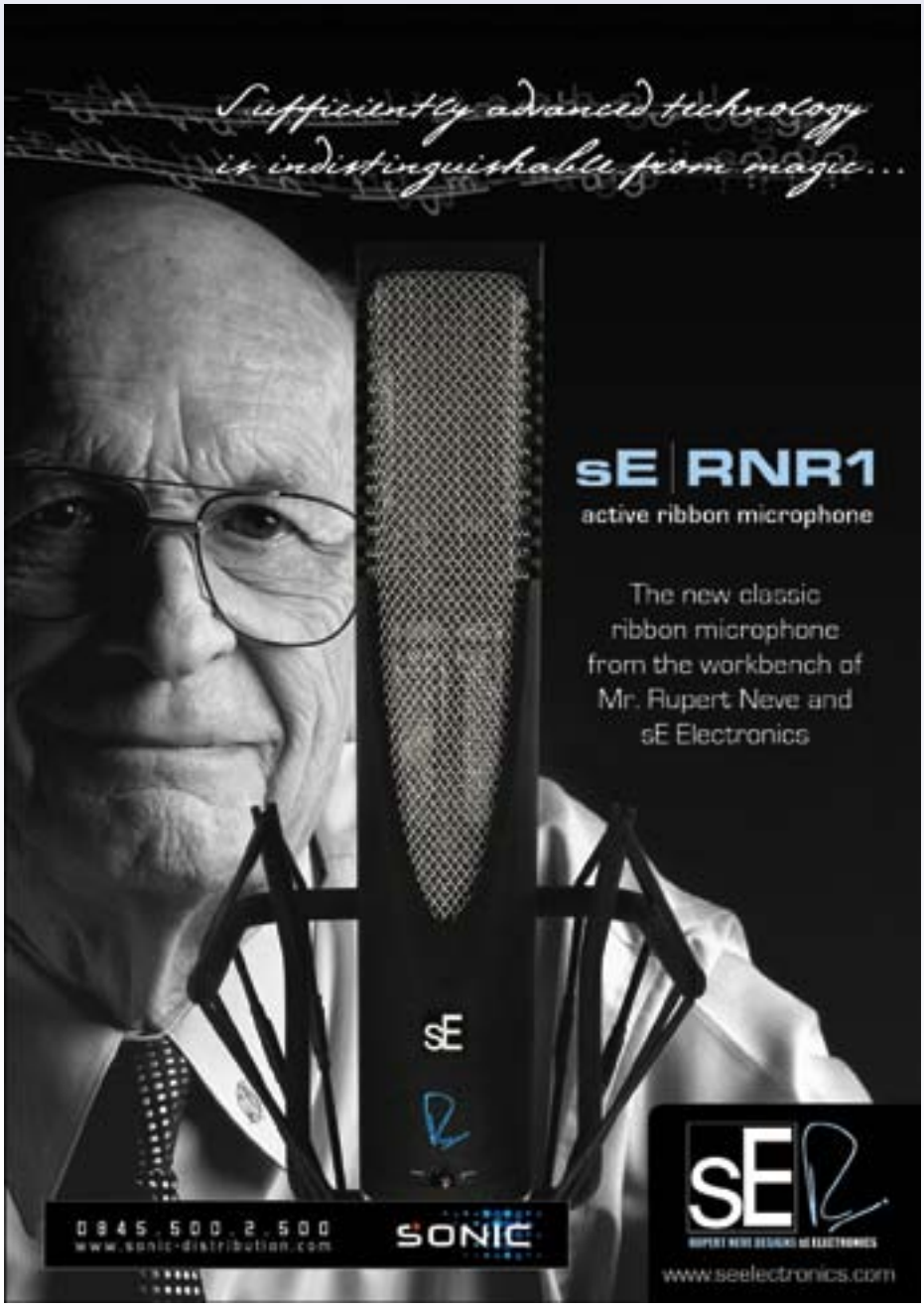
Reviewed: ***Audio Media*** **May 2011**

THE CHRISTMAS BOX

The products in our mid-year selection are ones that have been launched or reviewed since January and were not in the running for the 2010 Gear Of The Year list. However, it might be a little unfair to ignore that December run-down because of that fuzzy line between launch, review, release, and all things in between.

So here is that GOTH list once more, in all its glory:

Audio-Technica HBPS-1 • Avid Pro Tools 9 • Cedar DNS One • DiGiCo SD9 • Focusrite Octopre Dynamic MkII • Fostex FM-4 • Genelec 8260 • Harrison Consoles MixBus • Lexicon PCM Native Reverb • Midas Venice F • Nagra LB • PenteoSurround Penteo R/T • PreSonus StudioOne • RME Fireface UFX • RSS S-808 • Rycote InVision USM • Schoeps Super CMIT • sE Electronics Gemini 5 • Soundcraft Vi1 • SSL AW948 • Steinberg Nuendo 5 • TC Electronic System 6000 MkII • Thermionic Culture Fat Bustard • Waves SoundGrid



Roland Systems M-480

BEN BURNS says it's not the sound that sets this flagship console of the V-Mixing system apart, it's the ease of use, footprint, price point, and much more that makes it a difficult package to beat.

ROLAND HAS BEEN PRODUCING the V-Mixing system for some time, incorporating unique features that let you do things like link audio and video systems (via Roland's V-Link) for flawless synchronised audio and video fades. The heart of the system is REAC (Roland Ethernet Audio Communication), which can carry 40 channels of uncompressed 24-bit audio both ways down a standard CAT5 cable. In turn, the M-480 console is at the heart of a number of components that can make up an extensive REAC system.

This console features a newly designed mix engine, which can handle up to 60 audio channels with a fixed buss architecture including main (LCR), 16 aux busses, and eight matrices.

If you want more inputs, why not take advantage of the new cascade function? Then you can mix up to 96 inputs and up to 90 outputs using two consoles and one simple CAT5e/6 cable.

The main features of the console are:

- 48 mixing channels plus six stereo returns for a total of 60 channels
- Main (LCR) outputs, 16 AUX buses, eight matrices
- Four-band advanced parametric EQ, and delays on all inputs and outputs
- Compressors and gates on all mixing channels
- Six built-in stereo (dual-mono) multi-effects and twelve graphic EQs (switchable to eight-band PEQs)

First Impressions

The review model arrived in a flight case with wheels – if you were feeling like it you could get the 20kg desk into a smaller lighter case and carry it about. The M-480 reminds me of a PM5D in a few ways – the user interface is basically cursor keys and a data wheel, when you call up one of the graphic EQ modules for editing, an RTA pops up showing the frequency plot for the adjusted signal. Like the PM5, the M-480 has a central display and buttons, but where it differs are the function keys – more like an ATM screen with buttons. This is the part of the interface that speeds up the whole process of working with channels, as each button changes its function depending on the selection.

> "The desk boots up quickly and with absolutely no reference to the manual I was listening to audio in minutes."

The desk boots up quickly and with absolutely no reference to the manual I was listening to audio in minutes. Patching an input to a fader strip is super easy and quite intuitive, thanks to some ergonomic design ideas utilising the function buttons.

Memory slots for desk settings are stored the usual way, on a USB stick – Roland recommends that a dedicated USB device be used exclusively for the M-480 mixer. As far as snapshots go, there is an extensive 300 scene memory with global scope, recall filter, and lock functions. Almost everything on the desk is recallable, exclusions being the talkback section, USB recorder playback state, and user settings.

In Use

Bronzehead is an 11-piece afro beat band, and I thought I could try out the desk to mix a small gig for them – at the terrible mercy of the house PA system, acoustics, and monitors. I set the desk up for dual FOH and monitors – using the same channel for FOH and monitors. Usually I would run a second 'layer of channels' with different EQ and compression settings for monitors. This technique gives you more to do however, and as I didn't know the desk at all I went for the simple option this time. Running two layers is perfectly possible with this board – in fact, the first two user layers default to mirror the input layers, making this a default desk state – very handy as this set-up can take a

THE REVIEWER

BEN BURNS is a London-based freelance engineer- both live and studio- with credits including Blur, Dido, Embrace, Happy Mondays, and more.

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long time on other consoles.

Setting up the desk was easy enough, running the thin CAT5 cable over doorways is easy thanks to its light weight. I don't like more power on stage than absolutely necessary – self-powered wedges and rock and roll antics really don't mix well. The REAC stage boxes each require power via a standard IEC connector, and there is a convenient cable clasp for the power cable to be anchored to the unit to ensure a reliable connection. The whole Roland system works in a true plug and play fashion – so long as you get green lights for each REAC device connected it would seem you are in business. I didn't get any red lights, but I did get an intermittent connection and thus audio drop-outs during the prep – this turned out to be the supplied CAT5 cable drums with mutilated Neutrik connectors. Happily I figured the problem out before the gig and Mr. PVC whopped it.

Usually when mixing a show, DCAs (digitally controlled amplifiers) or the old analogue equivalent VCAs (voltage controlled amplifiers) are a useful way to control a whole group of inputs and get a general balance from eight faders. The DCA function on the desk works as expected. The DCAs are available via the screen interface – the DCAs are not by default on any surface but I found it quicker to set up a user layer with my DCA masters, which can then be navigated to with one button push.

Using graphic EQs on the output busses is easy, you can insert external devices if you prefer to use other processing equipment, although this will use up physical I/O on your REAC system and increase the latency of the signal path.

Patching the console is quite quick, once you realise there are a couple of ways to do it – one of the tricks this board does very well. Within two button pushes, you can view the current REAC input patched to any channel – select a channel and choose 'patch' from the onscreen menu, you are then taken to the patch editor with the crosshairs targeting the selected channel – this can save a lot of time when re-patching the console.

Adjusting the head amp channel gain, phantom power, and polarity settings are via a dedicated section and are very clear and easy to use. I found it hard to get confused whilst using the desk, which is surprising given the complex capabilities of the console and operator errors. The flow of operation is quite smooth, you never have to go into complex menu structures to do anything and it seems to operate in a predictable, intuitive way.

The onboard dynamics processors all work quite well and are fast to access. Once I figured out how to make the display button enable or bypass the processor, it became easy to insert gates and comps on any channel. Each gate has a key input (complete with filter), which can be soloed to fine tune the response of the gate. The dynamics processors worked well and it's easy to adjust the thresholds via a dedicated encoder.

EQ-wise, the four-band parametric results can be very dramatic – the digital processing yields results that sounded okay, whilst it wasn't an entirely smooth experience.

As far as the sound of the console goes, it is hard to put my finger on why it sounds the way it does. In my experience, it wasn't an LS9-yamaha sound, but a different, equally coloured 'something'. The frequency response proved to be wide and detailed, with a reasonably warm low end possible with the right source. I found the high end detailed but I didn't think it dazzled with a wide, spacious feeling.

Effects

Roland products can be seen on so many stages – the SPD drum pad/sampler is very popular and can sound excellent. Roland effects also have a heritage, as in the RE501 tape echo for example. Digital effects are something of a black art – I don't pretend to know much about algorithms, I really don't care, but I do know when something sounds musical and pleasing as opposed to sharp and obvious. The reverbs were ok – perhaps this venue was not the place to be critical about the effects, but the board mix also has a grainy texture to the reverbs, with audible comb filtering when a dry signal and a bypassed effect are summed together – due to the latency of the effects processor.

Expansion & Recording Options

One of the master plans for digital audio was supposed to be distributing a large number of audio signals to remote locations very easily and cost effectively. Whilst this is possible (with a little foresight) it is often ignored, requiring large bulky analogue racks to split and distribute audio. This is especially apparent where two different digital systems are employed that can't easily share digital audio signals. Roland has opted for a fairly extensive modular solution based on its proven REAC technology. Squeezing 40 channels of audio each way down a little CAT5 cable is a interesting approach, with most manufacturers using two cables (one for each direction). Roland is able to create products like the S-0816 stagebox – a small remote mic pre amp A/D converter with eight XLR inputs and 16 XLR outputs. By using an optional REAC splitter, multiple copies of the same audio can be easily mirrored to remote locations – quite an elegant digital press distribution system as large numbers of cameras can be served by one CAT5 cable and a small remote box. The S-1608 does the opposite, with 16 inputs and eight outputs.

> "Squeezing 40 channels of audio each way down a little CAT5 cable is a interesting approach, with most manufacturers using two cables…"

The REAC modules can be configured with various elements including conversion to MADI, optical REAC, and other formats, as well as a laptop computer connection and 48-track REAC hard disk recorder.

M-48 personal monitor mixers are similar to Aviom or Cuemix systems, using a REAC data stream (usually made up of subgroups) each musician can control their own monitoring mix. With access to individual channels and mix buss outputs, this is an elegant solution to personalised monitoring. I didn't get to try out the system with the review unit, but it is a powerful addition to the board if you want your musicians to mix their own monitors. The system should be very good for in ear monitoring, barring any latency issues (some singers will notice the comb filtering induced

by a slight processing delay to the in ear mix). Each M-48 personal mixer includes ambient inputs as well as a reverb effect and a processed headphone output. The line output even has a low pass filter for using kickers or subs in addition to in ears.

The R-1000 48-track recorder is available to use with any REAC system. It can connect to any MADI-equipped system via the use of the optional REAC-MADI bridge, although it would still have only 48 inputs. As part of the V-mixing system, the recorder can respond to commands from the V-mixer range and professionally facilitates video sync and timecode sync. The video capability will group this desk into a small number of products at this price that, by default, can handle professional video sync. There are even some GPI ports if you want to do some funky triggering by remote switches, RS232c and USB ports for computer file transfers.

By linking up two M-480 consoles, it is possible to have a 96 mixing channel system, the output busses are shared so output busses would remain the same. Again, there is a latency issue where the buss outputs from one console will be slightly delayed to the other. This would need to be measured just once, and the 'earlier' console's outputs delayed to fully phase align the two sets of signals.

Conclusion

For the price point, this is a seriously useful piece of kit, although building a large REAC setup would cost a fair amount. If it proved to be reliable it could be a cost effective way of building an integrated mixing, recording, and audio distribution system. If you need to work with video then there are many boxes being ticked by this console, even more so if you use Roland's V-link enabled vision mixers. Audio quality wise, there are things to be aware of, like the latency of various signal paths.

Critical listening tests are not the whole story when choosing a console in this range, which I think plays to the strengths of the M-480. Taking into account the capability, footprint, ease of use, apparent stability, and price point, this desk is probably quite hard to beat.

INFORMATION

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Ⓐ Roland Systems Group UK, Atlantic Close, Swansea Enterprise Park, Swansea, SA7 9FJ
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wireless update

The introduction of new UK and European radio frequency regulations is without doubt one of the hot topics in today's music industry. There is plenty of uncertainty about what will happen when next year's Channel 38 switchover takes place, and there is much talk about digital wireless versus analogue. Some people believe within just a few years, manufacturers won't be making any analogue wireless microphones. *Audio Media* talks to some of the major manufacturers about product upgrades, changes, and current trends that are being set in the wireless sector.

Stephanie Schmidt – Sennheiser
Don Boomer – Line 6
Wolfgang Fritz – AKG
Tuomo Tolonen – Shure
Kishore Patel – Audio Limited

AM: In the context of the new UK and European frequency regulations, what changes and upgrades to your product ranges have been made recently?

SS: For the UK, Sennheiser has launched its best-selling RF wireless series, the evolution wireless G3 and the 200 Series, in a special UK version to fully exploit Channel 38. In June, Sennheiser will also launch its brand new 1800 MHz systems (ew 100 G3-1G8 series). This higher frequency band is one hat has been reserved for wireless audio transmission exclusively in a number of countries across Europe. Users will no longer have to plan their systems around primary users or painstakingly search for gaps between TV channels. It's license free in some European countries, so there are no follow-up costs for the user.

DB: We at Line 6 entered the wireless category in a very unique position; we didn't have product to change or modify at all. However, we could develop an approach that accommodated the ever-changing RF landscape from the get-go.

Our systems were designed from the ground up specifically to deal with these challenges. We purposely steered away from utilising modified existing technologies as it is almost certain that this approach is only a short term solution a there are many more rule changes to come and many new devices coming online, all of which are going to be competing for bandwidth.

TT: This is something that's been going on for the past seven years, but over the last eighteen months or so, Channel 38 has been the industry buzz-word. We now have a number of lines of radio mics including the PG, which is entry level, the PGX, the SLX, and the UHF-R, and we've most recently brought in the Axient wireless system, which is the first of its kind able to change frequencies that are undetected by the user to avoid interference. All our mics are now channel-38 ready, which I think many manufacturers haven't yet properly addressed.

WF: Due to the new regulations all over the world with the lost frequency spectrum in the professional UHF range, we have had to add new products to our wireless portfolio that support the new assigned frequencies. The UK has a unique frequency situation: the license-free frequencies were changed from TV channel 69 to 38. All over the world, this channel 38 is blocked for radio astronomy, except in the UK, therefore we developed the new Band for our WMS470 and Perception wireless range. Also in Germany and other EU countries, customers have to change their professional wireless equipment to new assigned frequency ranges. For example, in Germany it is now the 710 and 790 MHz range.

A second important development was our professional DMS700 digital wireless microphone. With its ultra wide tuning range of more than 150 MHz it is absolute future proof and supports the old and new frequency range. It sets a whole new level of audio quality and encryption security.

KP: We were able to upgrade some of our more modern equipment, but some of our older gear stretches back eight or nine years or so, which meant we couldn't because of the Roche compliance, and we couldn't get all of the components. For us, to be able to redesign boards for an obsolete product wouldn't make sense – it would be at a far greater cost than getting people to go and buy a new one. On our 2040s and our Envoy systems, we were able to accommodate these changes as it involves circuit boards.

AM: What, if anything, are your offerings in the digital wireless GHz range?

SS: For a Sennheiser digital wireless system, you'll have to bear with us for the time being...

DB: All of the Line 6 microphone systems are digital and operate in the 2.4 GHz ISM band. This allows them to be used everywhere without any concerns over licenses. Due to the nature of ISM bands, any near future rule changes are highly unlikely.

TT: Shure's only digital wireless offering is the PGX Digital series which utilises the 900 MHz frequency band.

WF: The 2.4 GHz frequency range is not supported by AKG at the moment. This range is very crowded and has limited channel quantity and working range. Due to this limitation, it is not recommended for professional applications.

KP: No – we haven't gone digital at the moment at all as all the parameters need to be addressed in our market.
As far as the 2.4 GHz range – we think it is far too crowded an area to make applications work for our users.

AM: What trends do you see in product selection and deployment in the wireless sector?

SS: Frequency-wise, not all European countries have decided yet where wireless systems are to operate in the future. The UK and Germany are really quite far advanced in their frequency regulations. For example, in Germany, wireless systems are moving to 710-790MHz (secondary user status). Most rental companies have already expanded their portfolio in this range, though this process has not been completed yet. They especially have invested in the 2000 Series systems, and broadcasters are also renewing their stocks or getting existing equipment converted for this range. Individual users are a bit more reluctant, but the topic is increasingly getting their attention of course – although many still can't actually believe they will soon have to leave their accustomed spectrum, which was free of charge in the bargain. The 710-790 MHz range requires a license.

DB: Well, I think the days of 'clear space' are rapidly coming to an end. The challenge will now be to design radios that can operate in crowded RF environments. Our system

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was designed for just this reason and is highly reliable in such a crowded space as the 2.4GHz band. As customer demand for mobile products increases and bandwidth shrinks, only those radios that can operate in crowded RF environments will succeed as more and more bandwidth shrinks away. Everyone will benefit as these new digital technologies offer marked improvements to sound quality, reliability, and ease of use.

TT: Beirg has been instrumental in convincing Ofcom how vital a role radio mics play in the UK, and often manufacturers confuse the issue claiming that Channel 69 is licence free – which is absolute rubbish. Since 2004, only a handful of manufacturers tried to explain that this was a big deal – a tiny portion of the industry – until money was mentioned. The fact is that you need a license for everything else except 863-865 MHz, which is the beginning of the TV channel spectrum. I think that it's absolutely possible that in five years from now, no manufacturer will make an analogue wireless mic, because of the huge surge we're seeing now in digital technology.

For now, audio quality and latency are the most important factors, which is why people should be binning their old gear and purchasing Channel 38-ready equipment. Also, because of this ignorance, I fully expect many complaints to come in to manufacturers from clients saying 'my radio mic sounds horrible' come the switchover. That's why we all need to raise awareness and educate people on this. Surrender your old systems to funding where possible and migrate to the new allocated bands.

WF: There is a definite trend in digital wireless systems going on. A much better audio quality and a better resistance against interference is also a big argument for digital systems. New developments will have easier interfaces and network capability, but the price will increase due to the tighter frequency spectrum, which makes it necessary to use more expensive components.

KP: I think that people look for far greater flexibility than in the past, because they really want to be able to work anywhere in the world, which in turn means a set of brand new challenges for us as manufacturers. In our market in particular, a lot of the equipment is for field use and is battery powered. A mains system in a studio based environment is very flexible in terms of the frequency hopping and frequency changing aspect, but as soon as you get to small portable units, the challenges really are far greater. People are always looking for battery powered systems that have half-a-day's worth of life in them. We don't want to be forced to make those compromises. On the other hand, I think there's a chance that we will be forced down the route of wider frequency bands and have a deal of selectivity. It is essentially two conflicting demands in the changing wireless world which is being more and more impacted on by wireless techs such as YMAX and anything on the TV spectrum.

To Sum Up...

In conclusion, there is plenty to talk about in the modern day wireless world. License-wise, it seems there may be a certain lack of education in terms of what's free and what's not, which looks like it could surprise more than a few people once the switchover to Channel 38 takes place! But it also looks like each of these manufacturers has a vision of how to deal with it when it does happen, and is altering its current systems accordingly.
Perhaps more interesting though is the recent trend towards digital wireless systems; and I think it raises a serious question or two: could this be the beginning of the end for analogue wireless systems? And does that mean every manufacturer will eventually be forced to switch to digital? According to Shure's Tuomo Tonolen, that could well be the case as soon as 2016, and it'll be interesting to see how much traffic ends up on the already crowded 2.4 GHz range. We'll just have to wait and see. AM

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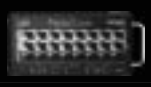
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Focusrite Scarlett 8i6

JERRY IBBOTSON becomes smitten with the simple but effective Scarlett 8i6.

PROGRESS IS A GREAT THING. When I left the BBC back in 2000, and set up initially as a freelance radio reporter and producer, the kit I used was pretty basic but still cost me a packet. At the heart of my home studio was a PC with a top-of-the-range domestic soundcard, with digital ins and outs to hook up to a Minidisc machine. It was, at the time, highly rated, but it makes me hang my head in shame eleven years later.

Sitting next to my laptop right now is a USB sound card (sorry, I still have a habit of using the term) with two quality pre-amps, SPDIF, midi ins and outs, and four analogue outputs. And it costs not a lot more than that device from the beginning of the century.

The Scarlett 8i6 (eight in, six out) is Focusrite's new baby. As someone who has used a number of its interfaces over recent years, going back to the original Saffire in 2005, I thought I'd see how it compared to its siblings. It was also a chance to see how far, pound for pound, prosumer technology has shifted in the last decade.

First Impressions Count

First impressions: it's red. The unit itself looks very similar to the Saffire Pro 24 I have in my small editing room but with a metallic red fascia. I wasn't entirely convinced by the colour at first but it's grown on me, and shows how Focusrite is keen to develop the Scarlett brand as a separate entity to the Saffires, which are Firewire devices. It's also quite petite and the sort of thing that could easily be slipped into a laptop bag to be taken on your travels. There's a separate power supply but no on/off switch, so remember to unplug it from the mains when you've powered down your computer.

On the front panel are two XLR inputs with gain controls for each, plus a monitor level knob and a headphone socket and level dial. Although the Scarlett has six outputs, the monitor level knob only works on the first two analogue outs. This is different to the machines that sit more at the top of the Focusrite range, where the hardware knob can control all the channels at once. It also works independently of the volume dial in the interface's mixing software, which I'll come to in a bit.

There's also the button for the 48V phantom power to the two pre-amps, and this responds with a really positive 'click' when pressed. The gain and volume dials also offer decent resistance. You might imagine that at this price point the hardware would be a bit wobbly and vague but it's not. Round the back is a bank of quarter-inch sockets for both inputs and outputs, SPDIF connections, MIDI ports, and the USB socket. Again, it's all pretty well screwed together and has a quality feel to it.

Installation

Rather than use a studio machine, I decided to install the Scarlett (do you 'install' a USB device?) on a VAIO laptop I use at home and on the road, running Windows 7. I figured this was probably how most customers will end up using them. A slip of paper in the Scarlett's box recommended going straight to the Focusrite website and downloading the latest software package straight away so that's what I did, although a disc is included. As tends to be the case with software and drivers these days, it all went as planned and the Scarlett was up and running in a matter of minutes.

The first task was to open the Mix Control software, which lets you set up exactly how you hear audio from the Scarlett without affecting how the inputs are routed to your DAW. It also lets you change sample rates and generally keeps an eye on things.

Everything Changes?

I've seen the Mix Control change a lot over the years. It's always been fairly basic but easy to use; I particularly like the simple way in which in lets me hear either an input source or an output mix on any of the hardware outs, or a mixture of both, using simple sliders. I've used audio devices where you have to go back into ▸

THE REVIEWER

JERRY IBBOTSON runs Media Mill, a York-based audio production company started in 2000 that specialises in sound for video games. Prior to this, Jerry was a BBC journalist for ten years, ending his spell with the Beeb as a reporter and newsreader at Radio One Newsbeat.

the control software each time you need to switch between the two, which can definitely slow down a recording session. The version of Mix Control supplied with the Scarlett (and with the current range of Saffires) is the most complex version to date and has changed the way it carries out certain tasks. It looks much more like a conventional mixer and gone are those Input/Mix sliders.

Along the top, the first thing you notice is a line of tabs marked 'Mix 1', 'Mix 2', and so on. They are a way of creating different routing setups that can be used simultaneously in different parts of your system. You could, for example, have one mix for your main monitors, one for your headphones and one for another set of speakers in another studio or room.

Below these tabs is a line of assignable faders. Click on any one and you can choose an Input source which can either be the hardware or from your DAW. Once you've chosen your inputs you get to choose where they go. On the far right is your Mix fader and if you click on it you can pick your output. You can also rename your Mix and that name will appear in the tab at the top of the screen.

In the bottom section of Mix Control are the final output routing: Monitors 1 and 2 take pride of place, but are followed closely by headphones and the other line outs and SPDIF. These decide what you hear where: a quick click lets you select a direct Input, a direct DAW output, or one of your tabbed Mixes. This is how you can have inputs and playback on one set of speakers and just playback on another: create two different tabbed mix presets and have one picked up by the main monitors, and another by the headphones and second speakers. It's the kind of thing I've found useful in a 5.1 studio, where you don't want the sound from your voice booth coming out of every speaker in the room. For someone recording a band, which is clearly where Focusrite is aiming, it could mean different mixes for different people.

A neat feature of the Mix Control is the loop back feature. This lets you record any audio playing on your machine into your DAW – useful for recording off the Net or a standalone application. You can choose where to send your loop back, and with a bit of fiddling I was able to record *Eastenders* from iPlayer into a multi-track. Which I quickly deleted of course. One practical use of this would be recording Skype calls, which has always been a bit of a faff in the past. Ironically of course, some sound cards of old did this kind of thing automatically

R-Amping Up The Test

Time to test those pre-amps. A two hundred pound audio device can't have decent pre-amps, can it? I mean, it stands to reason that corners have to be cut somewhere, surely? Well I'm a little baffled right now. I've hooked the Scarlett up to our main voice booth, which is home to an SE Electronics Z5600A 2, and recorded at 96K 24-bit (the highest sample rate available). Wow. It's a really nice sound.

I'd managed to recorded a minute's worth of dialogue with the -10db pad on the mic before I realised (doh….) and I'd not been too clever with the mic gain, setting it rather low. But neither of my blunders was an issue. Normalising the recording brought out no hiss whatsoever, at least none discernible to my ears. I did find it a little ragged around some of my more sibilant tones, but that's possibly nit-picking – it really shouldn't sound that good for the price.

Another neat feature is the bundle of Scarlett-branded VST plug-ins that Focusrite supplies with the interface, which also come in AU and RTAS versions. These are a compressor, gate, EQ, and reverb. They are pretty simple, with few parameters to alter, but less is sometimes more, and by starting with one of the presets and then gently tweaking some impressive results can be achieved. I particularly like the reverb, which has very natural sound. Nothing ground breaking but useful tools nonetheless in your DAW of choice.

I've almost forgotten overall audio quality. As I'm writing this, I've still got *Eastenders* playing through headphones, via iPlayer. It's a really bright, strong, clean sound (just a shame about the cockerneys). I'm not really surprised as the D/A converters in the Scarlett are the same as in my Saffire Pro 14, which I bought back in January. It replaced an ageing original Saffire, and I remember the first time I hooked it up and played back some material I'd been working on for weeks before. I was stunned at how different it sounded. There was detail in the mix I hadn't noticed from the older unit (good detail, I hasten to add). It was a sit-back-in-the-seat moment.

Conclusion

I'm a tiny bit smitten with the Scarlett. It doesn't do anything fancy but it is a well made, nice-sounding USB audio device. I can think of a number of ways it could be used, beyond the band recording it seems designed for. If I was procuring kit for a radio station I'd buy a stack of these, either to be used as input/output devices for digital audio or to pack off with reporters. A Scarlett and a laptop (plus a mic and table top stand) would turn any hotel room into a mini radio studio. Or if I was equipping a video edit suite I'd grab one for monitoring and recording voice tracks. Then there's media training, home studios, and just about any task where you need high quality portable audio without any fuss. And for less than two hundred quid. Now that is progress.

Did I mention it's also red?

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unit post production

KEVIN HILTON visits UNIT's new, purpose-built facilities in Soho.

Like people, all companies experience growing pains. The difference is that a company can choose not to get any bigger and just stay the same size in its original little niche. The only drawback is having to turn away work, which could affect what it has already. UNIT Post in London started out with a very defined offering – it was the first all-Apple Final Cut Pro (FCP) facility in town – but client requests for new technologies and services forced a re-think, culminating in building new premises.

UNIT moved into purpose-built facilities in Great Marlborough Street at the end of February. Over five floors the company now has three Pro Tools audio suites and rooms for picture grading, editing rooms, and visuals effects design. The move came about when UNIT's previous building on Carlisle Street was stretched to capacity. A sign that something had to change was when Chief Executive Adam Luckwell gave up his office and meeting room so an additional edit suite could be built.

Established as an off-line editing facility for the corporate and music promos market in May 2006, UNIT initially had six FCP HD suites. This grew to ten and then 18. After that, Luckwell says, clients started asking for things beyond off-line cutting; effects and graphics, which were accommodated by Adobe After Effects systems, Apple Shake, and Autodesk Combustion; colour grading on Apple Final Touch; and then audio, so a Pro Tools HD suite was added. As part of this expansion UNIT took over the building next door to house the additional suites and a new master control room (MCR)

As TV started to become a more substantial part of UNIT's work Luckwell was getting regular requests for technology he didn't have, including Autodesk Smoke on the Mac, Flame and the FilmLight Baselight, a much more sophisticated colour correction system than Final Touch.

Luckwell says that although UNIT started out targeting off-line editing using FCP, which, at the time was still considered a semi-professional desktop system, he was not so evangelical about his company's approach that switching to other systems was out of the question.

A Specialist Unit

Despite the appearance over the last ten years of the one-stop-shop post-production house, Luckwell observes that very few facilities companies do absolutely everything. There are, he says, the big groups and companies, including Ascent (Deluxe), Prime Focus, and Envy, but also specialists, such as Grand Central and Jungle in the audio sector.

So while UNIT has grown both in size and in terms of what it does, Luckwell has attempted to keep a separation between different markets. Which partly explains the name UNIT: "At the beginning it was meant to be lots of units around the world," Luckwell says. "We were going to set up in London and then expand to New York and Los Angeles. But as we got to capacity in Soho the idea changed to different units of services within the UNIT structure."

> "More and more we are commissioned to provide an integrated design and project supervision role on large, multi-discipline media projects and not just acoustic consultancy for studios…"

The move to Great Marlborough Street has allowed UNIT to properly establish and brand three business units that exist alongside each other but offer different, stand-alone services: The Cut, The Mix, and The Finish. Each has its own spaces and colour-coded signs so there is a feeling of a separate operation, albeit under a single corporate umbrella.

Audio comes under the heading of The Mix. Luckwell looked at Fairlight as a possibility for the sound editing and mixing system but decided to stay with Pro Tools, which he says, "is almost the industry standard", particularly for TV post work. "The Pro Tools won hands down because it's what the clients wanted," he explains. "It's the same with colour grading. Look at the top 20 facilities and most of those offering colour correction are using Baselight."

There are three audio suites, two with voice booths. The 9,400 square feet building also houses three Flame/Smoke finishing rooms, 12 off-line suites, the Baselight colour grading room, and 28 bays of visual effects in open-plan areas. Behind the reception area on the ground floor is an airy, modern looking vestibule and a bar for clients.

Making A Mark

These premises were not built to house a post-production facility but as a speculative general-purpose office development. UNIT brought in acoustic and studio design consultancy White Mark to not just work on the audio element of the project but also handle project management for the entire build.

"More and more we are commissioned to provide an integrated design and project supervision role on large, multi-discipline media projects and not just acoustic consultancy for studios," comments David

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Bell, Managing Director of White Mark. "This development for UNIT required the detailed architectural and acoustic design of technical spaces for both sound and visual post- production, together with their careful integration into a highly developed interior design scheme and optimised use of the daylight available throughout the building."

White Mark Director Alan Cundell was Project Manager on the UNIT build. He says the building as it had been originally laid out was completely open-plan. Although there is an element of that in what UNIT has now, particularly for the VFX bays, Cundell says a different approach had to be taken. "The client needed something more cellular," he explains, "particularly as we were putting in floating studios for the audio department. The building was in good condition but there were structural problems. It was structurally weak and wouldn't have supported what we wanted to do."

White Mark brought in structural consultants Andrew Waring Associates, which devised an inner shell design to replace the conventional floating floor approach that would usually be used. Instead of resting on internal floor beams, the floating studios have been installed using the monocoque technique, which uses the exterior of a building to take the main load of anything inside. In this case the audio suites rest on beam structures anchored into the walls, supporting the structures around the edges.

Construction work was carried out by Oakwood Building Services, with technical installation by Wire Broadcast. White Mark has worked with the installers on other projects and UNIT used Wire to work on its Carlisle Street building. But this was the first time UNIT had used White Mark.

"They were suggested to us by several other contractors that we were looking at for other things involved in the build, like wiring and construction," Luckwell says. "We also wanted a company that could project manage the build and White Mark was more than able to fulfill that brief. We ended up using all the people we wanted to use on this project and they all knew each other, which helps."

> "We try to get the best possible isolation, especially if a facility is going for Dolby licensing. We also work to keep the sound levels down. We find that people mixing sound for commercials like to work with a lot of level, so we don't want that to be heard by someone in the room next door."

Time To Plan

Luckwell adds that the building process was not as much of a headache as he had feared it might be. Cundell puts this down to having a long time to plan the design and building programme because Luckwell had signed the lease some time before the set date for moving in. So even though only 12 weeks were allocated for the build itself, Cundell says everything had been taken into account, including designing the monocoque structure for the audio suites.

Even this was tight, Luckwell and Cundell acknowledge. Monday, February 28 was scheduled as the opening date for the new facility. Originally the plan was for everyone to move in on the Wednesday before, but this slipped to the Friday, meaning that final testing was done over the weekend. "But on Monday we had eight suites going live and clients were coming in, so we opened on time," says Luckwell.

Cundell says there were some changes to how White Mark would usually lay out an audio facility. "It's usual to have the voice booth to the side of the mixing room," he says. "But because the UNIT building is long and thin the two that we have installed here are at the back of the mix area." Cundell adds that the size of the suites called for even closer attention to preventing reflections, so the dividing windows were carefully worked out. The glass between the booths and the dubbing rooms is angled in sections to reduce the possibility of sound reflecting back.

"We try to get the best possible isolation, especially if a facility is going for Dolby licensing," says Cundell. "We also work to keep the sound levels down. We find that people mixing sound for commercials like to work with a lot of level, so we don't want that to be heard by someone in the room next door."

UNIT is now not far from specialist audio facility Grand Central, which brought in White Mark to design isolation systems that would prevent any vibrations from the building and running of the Crossrail Link affecting recording sessions. Although UNIT's audio suites are above ground, Cundell says the new railway system, currently being built in Soho, was considered in the planning. "Because of the structural problems of the floor of this building we did think about not floating the sound studios," he comments. "But because of where the building is floating always had to be a requirement."

Scrubbing Up Well

The Pro Tools HD systems and Focal loudspeakers for all three 5.1 audio suites were supplied by Scrub.

By growing and adding more sophisticated equipment, UNIT has been able to move into mainstream TV and commercials post-production work. This includes advertising projects for

Sky, Mazda, and Bentley, along with commissions that are so sensitive in business terms that a private suite with a key-code lock has been set aside for client in case any competitors are lurking around.

A recent major broadcast project was science documentary series *Wonders of the Universe*. It was mixed by David Richmond and featured sound design by another UNIT dubbing mixer, Roz Wilson, who used 23 levels of sound to create the noise of a neutron star.

"By growing and adding more sophisticated equipment, UNIT has been able to move into mainstream TV and commercials post-production work."

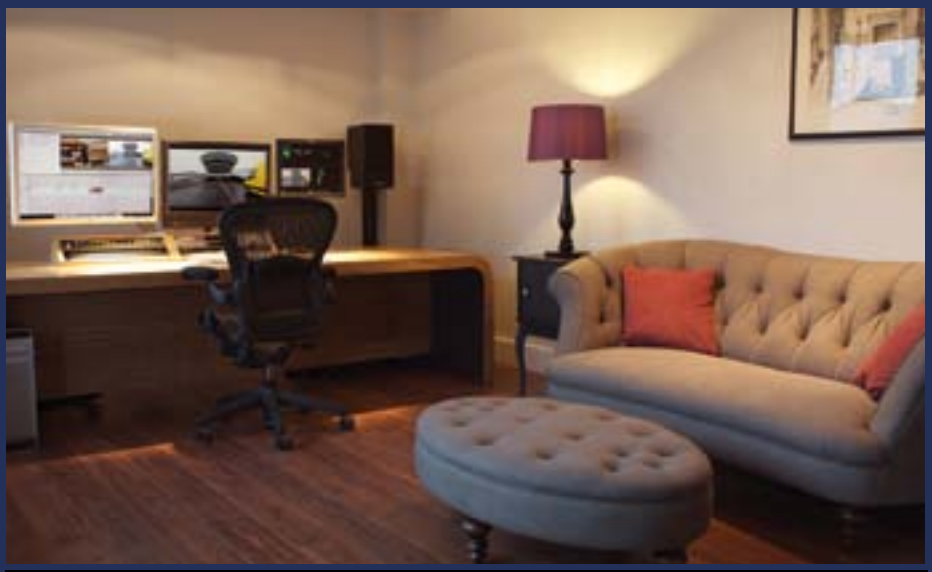
Wonders of the Universe was hugely popular and widely praised for introducing the marvels of the world to viewers but it did cause a minor media storm over its use of music. There were 100 complaints to the BBC that some tracks almost drowned out the presentation links and narration, so later programmes in the series were re-mixed, much to the annoyance of presenter Professor Brian Cox.

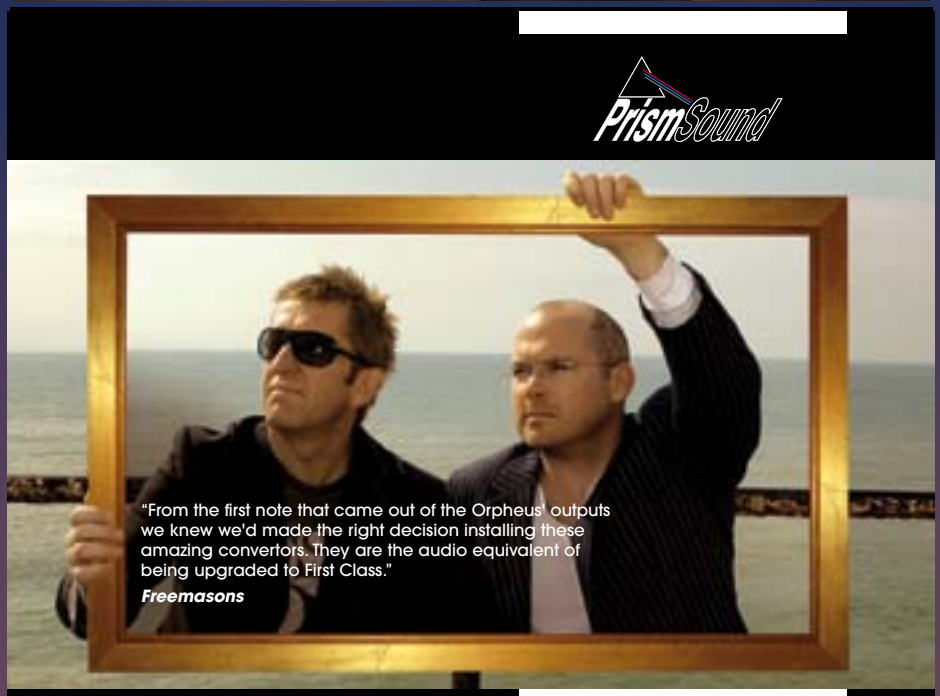
The re-mix was also done at UNIT and Luckwell agrees with Cox that the original approach was valid because the series was not a straight lecture but almost a cinematic experience. "They originally wanted a cinematic soundtrack, which is exactly what we gave them. We also did the re-mix and we can make it sound however they want it."

Onwards To New Worlds

UNIT is now settled into its new, tastefully designed home. The corridor walls are lined with production design illustrations and sketches of major films, including Alien. These come from the private collection of Luckwell's father, Mike. Luckwell senior, who worked in films and later founded the Moving Picture Company and was Managing Director of Carlton Communications, was a major investor in UNIT during its formative years.

Adam Luckwell says he has room for further expansion in UNIT's new building and will be taking space on another floor by the end of this year. He still doesn't have his own office yet, so whether he takes the opportunity to earmark a room for himself remains to be seen.

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adventures in the round

A Visit to Audiorama, Stockholm

PAUL MAC takes a trip round the latest in surrounding experiences and considers the technical needs of an artistic endeavour.

YOU CAN WIND YOURSELF UP in very tight knots when considering what mediums and media put the 'audio experience' at the centre of things. When is the experience of audio absolutely central to experience itself? A home stereo is a medium for music – if it's a particularly good set-up then the music will sound better, but we don't generally invite the consumer to wonder at the marvel that is sound, sound quality, and sound image. Of course, if you put two hi-fi 'over-enthusiasts' in a room, reality starts to break down and music becomes simply a medium for the gear.

Even in the whizz-bang surround sound experiences of modern cinema, the audience is encouraged to focus on the screen, not on the speakers. Though sometimes it's difficult to avoid the distraction of a projectionist who sees the volume control as an opportunity to weaponise the PA system.

Potentially, once you cross that boundary of sonic-vanity and start showing off, the carrier out-shines the modulator. So the trick is to get so close to that boundary that you can almost touch the sound itself, but never cross it – so that the sound bites your fingers off. This is where artistic direction comes in – a focus on the experience.

You'd imagine, wouldn't you, that giving 21 Genelecs and an ex torpedo-building workshop to people with a penchant for sound is asking for trouble. They might disappear and not emerge until inter-dimensional panning has been perfected. However, if you make sure that the art is the thing, and that the public have to be involved, you may just end up with a unique performance facility that could contribute significantly to the evolution of the audio experience – and not just for its own sake.

"You'd imagine, that giving 21 Genelecs and an ex torpedo-building workshop to people with a penchant for sound is asking for trouble. They might disappear and not emerge until inter-dimensional panning has been perfected."

Performance-Centric

The recently completed Audiorama venue in Stockholm, Sweden, is a space with a mission. Well, several missions: drama production, productions/learning experiences for young people, sound art, and commercial audio production. In Audiorama-speak these are Drama, Ung, Ars Acustica, and Ljud. Charged with fulfilling this brief on behalf of the Audiorama board are Marcus Wrangö (Technical Director), Magnus Brunnskog (Artistic Director), Karin Starre (Managing Director), and Jesper Ericsson (Consultant).

I visited the Audiorama facility right at the end of 2010, when the facility was only just completed. Since then it has maintained a creative calendar of events and is even running an Audiorama Ars Acustica open competition to commission an original work specifically for first performance in this interesting space.

The actual building is as solid as they come and is situated on the island of Skeppsholmen in central Stockholm, which has itself has become a cultural centre for the City, with a modern dance company, the Eric Ericsonhallen (an ex church, now choral centre), a Jazz festival, and more. Inside the main space you are surrounded by two concentric rigs of Genelec monitors – the lower one holding eight of the new 8260a three-ways, and the upper holding another four, plus a single central height speaker. There are more monitors and subs at floor level, creating the possibility of a 17.4 system – if that is what the production requires.

The floor area can be populated with chairs, or not – again this depends on the usage. But it is, without doubt, a space for playback and performance. The lighting system is sophisticated enough to cater for a variety of creative requirements, and the distinct lack of cable hazards, notepads, and sweet wrappers means that it's a public space.

Sound Is King

The thing with this venue, is that the sound is the start and end of its potential. It absolutely has be top notch to make Audiorama work. Fairly extensive work has been done on the building to make it suitable for the public, but the sheer mass in its walls make it a nice canvas for treatments and so on. The brief was to create a dry space – because the emphasis is on performance through the multi-channel system, not on live performance or recording – but lively enough to make it a comfortable place to be. About 60 people is considered to be the optimum number of guests, but it can, at a push, hold up to 100.

Inspiration for the final arrangement of speakers

came from a combination of sources. One was the need to make the system easily accessible to current technology and therefore easily accessible to contributing talent. Another was a reference system that had already been installed, with considerable success, into a Planetarium in China – which meant that it might be a commercially viable arrangement going into the future. The concept was for eight channels in the lower circle, and five in the upper circle (including the height channel), making the system conceptually 8 + 5.1 – not an enormous stretch for our new-fangled production technology. However, it also needs to be noted that the system is both incredibly flexible and can be configured easily for anything from mono and stereo to its 17.4 max. Indeed, the room is wired for additional monitors that might be required in the future, so the eight-channel main mix could become 16.

The actual monitors, the Genelec 8260a has fast become a flagship of the company's mid-sized monitors. It's a three-way, ti-amped system with a new coaxial mid/high driver and the full complement of Genelec DSP for use with the GLM loudspeaker management software. Audiorama uses the GLM software, plus the latest improvements in Pro Tools I/O set-up to configure and re-configure the system quickly and easily.

Exploring Possibilities

As you can imagine, the team has been feeling its way into the best ways to handle and set-up the system, including best configurations for the more standard channel allocations. More interesting perhaps are the reactions from audiences inside the space. One of the dilemmas is the idea of a sweet spot and the need to make sure more than 60 people get a worthwhile experience. One attempt at an evening with a coffee bar in the middle of the room had audience members migrating to the very outer edges of the space. Similarly, with ordinary seating the focus of the audience is fixed, which for many of the productions is not desirable. The simple solution was to bring in swivel chairs, so the audience can orientate themselves however they wish during a performance. Another is to do away with the chairs altogether so the public can walk around inside the experience.

Drama is an aspect the team is very keen on, as the audience can be amongst the action, and the actors don't need to be three.

The team admits that they are still feeling their way amongst the myriad of possibilities that the space presents. To a large extend they are looking to incoming talent to help define things and evolve good practise. Recent experiments with discretely panned sources counterpointed against more ambient material have been described as the difference between being asleep and awake. The shades between these extremes might, for example, be a new way to control some kind of audience consciousness – a technical process leading to many levels of artistic opportunities. This is, after all, what audio should endeavour to be, isn't it?

www.audiorama.se

Audio Media would like to thank Genelec for arranging the visit to Audiorama.

www.genelec.com

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www.akg.com

The RM 510 is a ribbon capsule with a cardioid polar pattern. It is an interchangeable microphone head for **Beyerdynamic**'s Opus 600/900 transmitters. The company's sound channelling technology makes the RM 510 the first ribbon capsule suited for use on stage with wireless microphone systems. It also makes use of a newly developed treble resonator, for rich high-frequency reproduction.

www.beyerdynamic.com

DPA's 4099 clip microphone range comprises an array of instrumental microphones with discreet mounting solutions. The range provides a dedicated 4099 for each instrument found in a full orchestra. The microphones are handcrafted in Denmark with a supercardioid polar pattern for superior gain-before-feedback.

www.dpamicrophones.com

Audio-Technica's ATR2100-USB is a versatile cardioid microphone for live performance and digital recording. It is equipped with both XLR and USB outputs. The ATR2100-USB also offers a quality analogue to digital converter for excellent fidelity, and a headphone output with level control for monitoring with no audible delay.

www.audio-technica.com

Blue's en·CORE 300 condenser capsule is hand-selected and tuned for an open, detailed, and present sound. It is intended for use by powerful vocalists on stage or in the studio. The capsule is matched to a custom-designed phantom power circuit to deliver consistent tone and minimal noise. Blue's proprietary floating capsule mount provides isolation and minimal handling noise without pads or filters.

www.bluemic.com

The **Earthworks** SR40V High Definition is a condenser microphone with an extremely fast transient response. The microphone earns its High Definition name with a frequency range that spans from 80Hz to 40kHz. It also benefits from proprietary True Live Sound circuitry, providing a high level of accuracy in the time domain. This accuracy enables that faithful reproduction of harmonics.

www.earthworksaudio.com

The **Audix** VX10 is a professional vocal condenser microphone with a uniformly controlled frequency response from 40Hz-20kHz. It features a 21mm gold vapour capsule and a multi-stage internal pop filter. It can also handle sound pressure levels in excess of 138dB. For greater control with loud stage volumes or extremely powerful vocalists, the VX10 is also available in a low output VX10-Lo model.

www.audixusa.com

CAD Audio's Stage7 is a seven-piece drum mic pack. Included in the pack are three D29 dynamic tom mics, two C9 instrument condensers, one D19 dynamic snare drum mic, and an upgraded D12 dynamic large diaphragm kick drum mic. The tom and snare mics are equipped with integral drum mounting clips. A vinyl carrying case is also included for transport and storage.

www.cadaudio.com

The **Electro-Voice** RE320 is a dynamic microphone with extremely low noise and a high level of predictable tonal and transient response. It has a two-position frequency response switch to select between two performance curves. It also uses the same humbucking coil technology found in the RE20 and RE27N/D to combat interference from other sources, resulting in a quiet signal path.

www.electrovoice.com

Microtech Gefell's MD range of dynamic handheld mics are intended for professional sound reinforcement and recording. The range comprises of the cardioid MD100, hypercardioid MD110, and omni MD120. All three models feature a frequency response that has been optimised for intelligibility and an internal elastic suspension that reduces handling noise.

www.microtechgefell.de

The LSR-3000 is **Milab**'s flagship live condenser microphone. It is based on the capsule from the company's VM-44 system and has a rugged body for a hard life on the road. It is insensitive to handling noise, has excellent feedback rejection, and can handle sound pressure levels of up to 150dB.

www.milabmic.com

The **Rode** M1-S is a live performance dynamic microphone with a lockable on/off switch. It is based on the same neodymium capsule and feedback rejecting pick-up pattern as the original M1. The M1-S also features a lockable XLR output for improved security in public venues.

www.rodemic.com

The XD-V70 is a digital wireless microphone from **Line 6**. It is equipped with digital modelling software that reproduces the characteristics of six top live-sound microphones manufactured by rival companies. A button on the microphone shaft allows the user to select the model that best suits their voice.

www.line6.com

Neumann's KMS 104 plus is a handheld live microphone that has been specially optimised for female rock and pop vocalists. It has a high acoustic resolution and smooth frequency response. The KMS 104 plus features a cardioid condenser capsule that suppresses sounds originating from behind the microphone.

www.neumann.com

The COS-11D Head Worn Microphone uses the same miniature microphone found in **Sanken Microphones'** lavalier models. It is designed for high resolution audio in live stage productions. The head worn model secures the microphone close to the vocal source, ensuring consistent audio with natural characteristics.

www.sanken-mic.com

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The **Schoeps** CMH is a wired handheld or soloist's microphone that has been developed to be particularly resistant to plosive noise. This resistance is provided by a built in pop filter and the microphone's low-frequency rolloff. Because of its well-balanced frequency response, the CMH can also be used for speech pickup.

www.schoeps.de

Sennheiser's evolution wireless ew 100 G3-1G8 series are the first wireless systems to transmit signals in the 1800MHz frequency band. Several evolution wireless systems are available for vocals. The ew 100-945 G3-1G8 features a feedback-resistant super cardioid microphone capsule. The powerful hand-held transmitter has a large graphic display that shows all-important information.

www.sennheiser.com

The DM range is **Sontronics**' first line of direct drum microphones. The DM-1T, DM-1S, and DM-1B are each dedicated to tom, snare, and bass respectively, for stage and studio applications. All three end-fire pencil-style condensers have a -15dB pad switch that allow the mics to cope with up to 135dB SPL.

www.sontronics.com

SE Electronics' H1 is a handheld condenser microphone that accepts SPLs of up to 145dB. Like traditional dynamic mics, the H1 features an internal shock mount that reduces handling noise during live performances. However, its capsule is a true condenser, making live performances clearer and richer than they would be with a dynamic mic.

www.seelectronics.com

Shure's Beta 181 is a compact, small diaphragm, side-address condenser microphone with interchangeable capsules that provide a choice of polar patterns. Its reduced size allows it to be placed in tight conditions where a large diaphragm model would otherwise be desirable. It is best suited to use as an overhead or on acoustic guitar or orchestral instruments. It is also recommended for choral vocals.

www.shure.co.uk

Telefunken Elektroakustik's M80 is a handheld dynamic microphone with a wider frequency response and higher SPL capabilities than standard dynamic models. Telefunken has also developed a wireless M80 capsule head with screw-on terminal connections for Shure transmitters. The company is currently in the process of developing screw-on heads for Line 6, Lectronsonic, and Sennheiser transmitters.

www.telefunken-elektroakustik.com

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15-21 JULY 2011 develop in brighton

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The closing date for entries is June 30, 2011. Winners will be notified on July 4, 2011.

Develop In Brighton

The Develop Conference will run from July 19-21, 2011, with a series of sessions and keynote speakers addressing all the hot topics in games development – see Cut Scene on p.18 for more details and some of the session highlights.

Develop will open with the three-day Evolve programme from Tuesday, July 19, a forward-looking programme that will tackle all that is new in game development to help developers consider the issues arising from emerging platforms and digital marketplaces, connected gaming, user-generated content, and the crossover between games and Internet services.

Thursday, July 21 will see the new Indie Dev day, a day-long conference of half hour sessions and networking designed for 'established independent studios, new start-ups, wannabe indides, freelance developers and students'.

The Develop Expo runs from July 20-21. The Expo is free to attend, and brings together some of Europe's most innovative companies while offering the chance to network at an informal level at the bar and lounge. There will also be a brand new Indie Showcase at the Expo, to complement the Indie Dev Day at the Conference.

Develop bills the Audio Track as "a solid, practical programme to improve your work and reputation," and says "While at its best game audio now matches movies from a technical standpoint, there's still plenty of progress to be made artistically... challenges ranging from cross-platform development and emerging formats such as iPhone to global competition mean there's always more to learn."

Passes for the conference are available soon via the Develop website. Manufacturers and service providers interested in exhibiting at Develop Expo

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Each month, sE Electronics and *Audio Media* are giving away an sE 4400a microphone to one lucky subscriber. All you need is a subscription to *Audio Media* magazine (digital or print) – if you don't have one, complete this form or subscribe online at www.audiomedia.com. All new subscriptions will automatically be entered into that month's prize draw, and the winner drawn at random from our complete subscriber list, contacted by e-mail and announced in the following month's magazine.

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Colour Grading: Part 15

KEVIN HILTON compares the approaches of DaVinci and Linux towards DI in the new century.

The shift towards digital intermediate (DI) in post-production has had a profound influence on how images are transferred from film and their colours manipulated. The change in approach is illustrated by one of the two pioneering manufacturers of colour correction systems, da Vinci, moving away from dedicated hardware platforms to offer a more open, software-based form of operation working on Mac, and Linux.

The evolution towards this current incarnation of da Vinci systems began with the turn of the 20th century. At the time the company's main products were the 8:8:8 correction workstation with the DUI (da Vinci User Interface) controller. A 2k version for HD and data, as well as SD, was introduced in 1998.

By 2000 a new Defocus Option had been added, giving In or Out Defocus and Sharpness effects, in addition to Power Windows, In/Out colour, and matte defocus. That same year da Vinci bought the Singaporean company Nirvana Digital, which produced the Revival film restoration package.

A year later PowerGrade and the optional Gallery and Colourist Toolbox were introduced. PowerGrade was designed to create filter type grades that could be used in 2k sessions of any resolution, using material for a variety of sources. Only 2k parameters, along with Defocus, could be stored using this application.

The Gallery Option was an integrated reference store that was standard on all 2k Plus systems. It offered a Central Server and Palette paint program interface. In 2002, HDTV and SDTV support had been added to the 2k Plus through an IBM PC running Red Hat Linux interface software, marking da Vinci's move towards more open operating formats.

Paired with datacines and telecines including the Grass Valley Spirit and Cintel C-Reality and Millennium (ITK as was), the 2k was running 4:2:2, 4:4:4, or 8:4:4 inputs in NTSC or PAL, with a 4:2:2 or 4:4:4 input for HD. This new version of the 2k also featured redesigned Primaries, Secondaries, and Keys, with a Linux control interface as standard.

Colourist Toolbox was a hardware upgrade option for users whose operational requirements had outstripped the Defocus feature. The package included four Power Vectors, each having its own matte, Defocus, Power Windows, In/Out Master Secondaries, Filter Effects, and Textures.

> "...the pivotal moment for da Vinci's later development came in 2003. That year saw the launch of the Resolve software-based colour corrector. This is now the core of da Vinci's product range..."

New Technologies, New Names

From the early part of the last decade da Vinci consistently introduced new grading features, including Toolbox 2 in 2005, along with networking capability. In 2003 it launched Nucleas server-to-server software program, which enabled the 2k system to connect to data drives and storage networks.

The Impresario Control Panel appeared in 2008 but the pivotal moment for da Vinci's later development came in 2003. That year saw the launch of the Resolve software-based colour corrector. This is now the core of da Vinci's product range and has been the focus since Australian video processor and monitoring manufacturer Blackmagic Design bought the company in 2009.

In 2010 the da Vinci colour correction range was stripped down to a redesigned version of Resolve, with the program running on either Mac OS X or Linux computers. The branding was also changed, with the original lower case 'd' replaced by a capital and adding a contraction, to give DaVinci.

The Resolve system still has a dedicated control surface designed specifically for grading available, but the whole package is now substantially less expensive than previous proprietary platforms. Priced at US$995 for just the software, Resolve is pitched directly against Apple's Color system for Final Cut Pro. A full system with controller comes in at US$29,995.

The basis of the 'new' DaVinci Resolve is an array of high performance GPU cards, which process all material in real time. The core system features dozens of primaries, secondaries, ▸

The DaVinci Resolve 2.

GLOSSARY

ALE

AvidLogExchange is the application that converts film to tape transfer logs as well as 24P down conversions. The .ALE format is the format of the ASCII (text file) that can be imported into Avid editing systems. An Avid log can be prepared on any model of IBM-compatible or Mac computer using a word processing program or the text editor. For this to work correctly the document must follow a specific order, consisting of three sections: Global headings; Standard and custom column headings; and Data headings. This must be followed order precisely or the log will not be recognised by the Avid system. The current version of the ALE specification covers all fields for versions 10.x and 3.x of Avid Xpress DV, Avid Xpress, Avid Media Composer, Avid Film Composer, Avid Symphony and Avid Symphony Universal.

Colour Grading: Part 15

Power Windows, multi-point tracking and blurs, among other tools. By adding more GPUs to upgrade the operating platform to supercomputer rating, Resolve is able to cope with 4k resolutions, stereoscopic 3D and real time grading of camera files, including ARRI raw and RED raw R3D files.

The latest version of the system, Resolve 8, was launched at this year's NAB. Among the new features are multi-layer timeline support with editing and XML import and export for Final Cut Pro (FCP). The XML and timeline feature allows complicated scenes held on FCP to be brought into Resolve, graded and then exported back into the editing workstation with all shots and the layer structure fully saved. If any changes are made to the edits in FCP the Resolve 8 will automatically re-link the sequence to preserve the grade settings.

DaVinci's embracing of desktop computing is further shown by Resolve 8 including OpenCL processing, which enables the system to be used on Apple iMacs and MacBook Pros. Among the features are real-time noise reduction, curve grading, advanced multi point stabilisation, and automatic stereoscopic 3D image alignment. This latest version of the program can also work in conjunction with the Avid Artist Color control panel, with ALE (see glossary) export for re-exporting graded DNxHD files into Avid editors.

The Lite Touch

Alongside the main Resolve package DaVinci introduced the free Resolve Lite program, which has the same processing features but is restricted to SD and HD resolutions and has two colour correction nodes, a single processing GPU and a single RED rocket card.

The Lite was conceived for laptop computer operation and now with OpenCL and interfaces for the iMac and MacBook Pro, DaVinci is attempting to bring the full power of Resolve to this level of computer. The company particularly sees this feature as suiting on-set grading, allow a colourist or director of photographer to begin working on the grade before getting into the colour suite at a post-production house.

By using a wider range of GPUs, Resolve 8 can deliver real-time processing for resolutions up to 1080 HD. DaVinci acknowledges that OpenCL is not as powerful as the CUDA processing used for the main Resolve system, it allows the program to be used on a greater variety of computers.

DaVinci Resolve 8 also features Curve Grading, which has been designed to work in the same way as low end editing software grading programs. The company says this lets colourists who are less familiar with top-end systems to become familiar with Resolve quickly. Curves can be set using the computer mouse as well as the Resolve control panel, which is intended to speed up the grading process.

For 3D work Resolve 8 has an automatic image alignment tool to balance images from the two cameras to produce a properly matched 3D picture. This feature is based on sophisticated image processing technologies that were developed by the Blackmagic Design advanced algorithm team.

DaVinci's migration towards software operation and away from hardware, including the telecine control aspects that characterised the early colour correction systems, shows just how much the film transfer and grading sector has embraced new digital technologies. It does not, however, mean that there is no longer any need or demand for interfacing with TK machines.

Linear Rivalries

Pandora International, DaVinci's big rival in the 1980s and '90s, recognised that linear TK work is still necessary and developed PSI (Standing for Pandora Spirit Interface), which turns the Spirit Classic telecine into a real-time 2k data scanner.

A further commitment to the TK market from Pandora is the Pilot controller for telecines and tape decks. Based on the established Evolution control system, Pilot is run by a T3 panel and uses the same technology as Pandora's Revolution colour grading system. Features include film transfer and tape-to-tape working, with colour correction; control of all telecine transports, colour correction, and advanced features; multiple colour decision lists, unlimited scratchpad for notes and setups; five deck editing function, field accurate control of telecine, and up to four VTRs.

> "While no one can doubt Pandora's reputation and standing… there was some disquiet that DaVinci's metamorphosis essentially left a choice of one for anyone needing a telecine controller."

While no one can doubt Pandora's reputation and standing in the TK and colour control market, there was some disquiet that DaVinci's metamorphosis essentially left a choice of one for anyone needing a telecine controller. There is still demand for this equipment, particularly in smaller facilities and dailies houses working on tight turnarounds, so Marquise Technologies' launch of the O C E A N (Open Controller for Engines Across Network) system last year was generally welcomed.

Ocean Colour Scenes

As described in last month's Video Guide, Swiss company Marquise Technologies was founded two years ago to produce colour correction and management systems. Even before the new Resolve system was unveiled by DaVinci/Blackmagic Design, Marquise's directors had seen an opportunity for a lower cost telecine controller.

> "Even before the new Resolve system was unveiled by DaVinci/Blackmagic Design, Marquise's directors had seen an opportunity for a lower cost telecine controller."

O C E A N was initially designed for the Altra telecine produced by fellow Swiss manufacturer Sondor. The Altra is a low-cost TK machine that works in SD and can be upgraded to HD operation. It has a 2/3-inch area scan image sensor and can accommodate 2, 3, and 4-perf 35mm film and standard and Super 16mm stock, delivering 24 and 25 frames per second speeds.

A key feature that forms the basis of the link-up between the Altra and O C E A N is the RS422 protocol, which is supported by both machines. Since being introduced for the Altra the controller has now been adopted for the market leading telecines; Cintel's Millennium HD, DSX/C-Reality and Ursa, and the DFT Spirit datacine and Shadow telecine.

O C E A N controls the telecine features but also adds numerous digital corrections that cannot be performed on a telecine. It also features a wide range of data transfer capabilities, including MXF encoding. O C E A N is able to handle transfers up to 2k and offers colour correction features in addition to control functions. The system can also work with Cintel's imageMill picture processing workstation.

During NAB Marquise introduced a basic version of the controller, Light O C E A N. This machine gives control of primary and secondary grading, pan and scan, zoom, focus, aperture controls, and masking.

The next Video Guide will look at Pandora International's Revolution system and how it and DaVinci's Resolve co-exist with desktop systems like Apple Color.

news

West Hollywood post-production facility DigitalFilm Tree has colour corrected military forensic detective series NCIS: Los Angeles using a Blackmagic Design DaVinci Resolve.

DigitalFilm Tree began using the software-based system half-way through the current season of the crime drama and has two Resolve suites for the production. The post house is also using Blackmagic Design HDLink Pro 3D DisplayPort for HD and 2k monitoring.

DigitalFilm Tree founder Ramy Katrib commented, "The speed that is needed for weekly episodic colour correction meant that the DaVinci Resolve's real time performance was essential for us. It allowed us to colour time sensitive material without having to leave the application in order to preview. We can complete a first pass grade, making changes with the client as we go. With the DaVinci Resolve, we spend less time handling the logistics of a shot and more time creating."

Online Editor and Colourist Patrick Woodard added, "In particular, the DaVinci Resolve control surface greatly increased our efficiency and is the perfect match for the Resolve software. It is easy to see that the control surface was designed by colourists for colourists, based on a natural flow that allows us to keep our eyes on the screen to focus on colour correction."

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Apocalypse Now

KEVIN HILTON uncovers the unconventional approach taken to sound on *Apocalypse Now*.

THERE ARE FILMS THAT ARE an all-out assault on the senses, hurling images, sounds, performances, and ideas from the screen at the audience. *Apocalypse Now* (1979) is such a film. Even the Sound Designer, Re-Recording Mixer, and Picture Editor on the movie, Walter Murch, wondered if the style Audio Director Francis Ford Coppola wanted for it was necessary. But when he saw the finished production, with its big Panavision visuals, he says he realised the soundtrack he helped create was the thing to do.

The Academy of Motion Picture Arts and Sciences agreed. Murch, along with Mark Berger, Richard Beggs, and Nathan Boxer, won the Oscar for Best Sound at the 1980 ceremony but missed out on the Best Film Editing award, for which he was also nominated.

In *Apocalypse Now* the sound works with the visuals to create a histrionic, disjointed, and hallucinogenic world that drags the viewer into the story. In a 1998 interview Murch told me he looks on the film in terms of a number of firsts. It was the first multi-track film he had worked on; other new territory was explored because it was a multi-channel soundtrack with low frequency enhancement.

Apocalypse Now was shot two years after the first *Star Wars* movie, which had popularised Dolby Stereo matrixed surround sound. Murch and his team decided to push the technology further and create discrete stereo surround with six-channel play-back (front left, centre, right, rear left, rear right, and a sub-woofer channel), something that would not become standard practice for nearly 15 years.

The only way this configuration could be put on film was to use a 70mm print with six channels of magnetic sound. Cinemas of the time were not equipped to cope with this, so 17 selected theatres in the US were rewired.

Breaking Away From Convention

There was also an unconventional approach to two audio components of Apocalypse Now: the background atmosphere of crickets and the narration. In Michael Ondaatje's book *The Conversations*, Murch explains that just going out in the field and recording a thousand crickets would not have given the "hallucinatory clarity" he wanted. Instead he recorded individual crickets and multiplied the sound electronically to produce a thousand, giving the sensation that each insect had its own mic.

The voice-over by Martin Sheen as Captain Willard has an intimate, conspiratorial quality. This was achieved by close-miking Sheen, who Murch directed to imagine the mic was somebody's head on a pillow next to him, and then spreading the recorded narration between all three front loudspeaker channels to envelope the audience with Willard's thoughts.

The original score for *Apocalypse Now* is credited to Francis Coppola and his father Carmine, but this is overshadowed by two pieces of "found" music. Wagner's *The Ride of the Valkyries*, played by the Wiener Philharmoniker conducted by Sir Georg Solti, accompanies the approach of Lieutenant Colonel Kilgore (Robert Duvall) and his helicopters. Just as the film was being finished Murch couldn't get permission from Decca Europe to use the recording. The closet alternative version in terms of metric pace was by Erich Leinsdorf and the LA Philharmonic, but it highlighted the strings, rather than the brass. In *The Conversations* Murch says this affected the visuals because the brassiness enhanced the acidity of the blue sea. Luckily Coppola contacted Solti, who persuaded Decca to clear the rights.

Apocalypse Now opens with *The End* by The Doors playing over images of a forest being napalmed, intercut with footage of Martin Sheen drunk in a hotel room. In 1998 Murch commented that although he was pleased with the scene he was not a big fan of The Doors.

New Century, New Sound

In 2001 Coppola released *Apocalypse Now Redux*, featuring 49 minutes of "new" footage taken from the raw, unedited dailies. The audio on these sequences had not been mixed, so soundtracks had to be built up from scratch and then integrated into the fabric of the existing footage. Several elements already existed on six-track, including jungle backgrounds and small arms fire. These were loaded into a DAW and combined with new explosions and effects that were unique to each particular section.

All this material was held either in a former salt mine used as an archive or at Coppola's vineyard home and post facility in northern California. Coppola has a reputation as a hoarder, or pack rat, but this proved useful on the Redux, particularly when dealing with the original mixes. These had been encoded in dbx and were only converted into Dolby for the print master. Because Coppola had kept all the dbx cards these sections could be used again with little trouble.

Murch told me in 2001 that because he had spent two "challenging, draining" years on the original film, so he approached the new version with some agitation. Apocalypse Now is recognised as much for the excesses and problems of its production as it as a work of art.

The making-of-documentary *Hearts of Darkness* shows the whacked out condition of the cast and crew after so long on location: the God-like Coppola, the bloated husk of Marlon Brando, and an in-orbit Dennis Hopper. Unearthing the location tapes during the preparation of *Apocalypse Now* Redux bought home the strain on the crew. On the early takes they're bright and efficient, with the standard "Scene 24, Take One" style of working. Later on the voices were cracked, tired, and ironic: "I've been in the jungle for 128 days now...".

Despite Coppola saying that *Apocalypse Now Redux* was now the official cut of the film, the version presented to the Cannes Film Festival in 1979 has just been re-released theatrically. Take the opportunity to see this cinematic and aural assault in its natural environment while you can. AM

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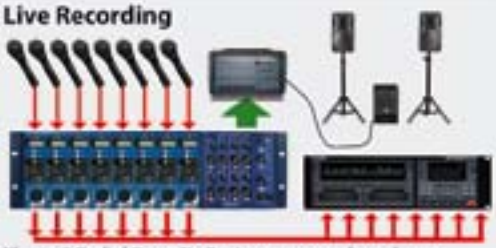

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Welcome

Welcome to *Live Sound Technology 2011*, an overview of the live sound product market for the sound reinforcement professional.

This second live sound supplement from *Audio Media* magazine is an all-new exploration of current thinking and hot products in the performance audio and sound reinforcement industries. This area has some very specific needs, from bullet-proof reliability and redundancy, to maximum emphasis on ergonomics and immediate access to functionality. An audience makes all the difference – you can't go back and try again.

Running parallel with these core requirements are the stunning advances in sound quality that have been made in a relatively short time. The consumer is demanding more and more from live performance, and the manufacturers and operators are delivering. The new generation of digital consoles, plug-in processing, progress in PA and line array, sophisticated audio and comms networking tools, and much more are all contributing to rising standards in sound reinforcement.

We hope this guide will serve as a good foundation to your 2011 live sound equipment specification, whether you're creating a shopping list for your theatre, a rider for a forthcoming tour, or an investment plan for your rental operation. To help set the scene, we've included independent articles on the live sound industry, then we present product expos from ten manufacturers, all with high-end technology solutions specifically for sound reinforcement. Lastly, we present a directory of selected manufacturers directly relevant to the live sound industry.

This promotional guide has been produced by *Audio Media* magazine. The publication concerns itself with the business of audio production on tour, on location, and in the studio – for professional creatives, operators, technicians, and engineers everywhere.

The Audio Media Team.

AUDIO MEDIA
www.audiomedia.com
(UK) Tel: +44 (0) 1354 669960 - Fax: +44 (0) 1354 669965

Editor
Paul Mac
p.mac@audiomedia.com

Editorial Manager (Europe)
Lanna Marshall
l.marshall@audiomedia.com

Sales
Graham Kirk
g.kirk@audiomedia.com

Design & Production Manager
John-Paul Shirreffs
jp.shirreffs@audiomedia.com

NewBay Media
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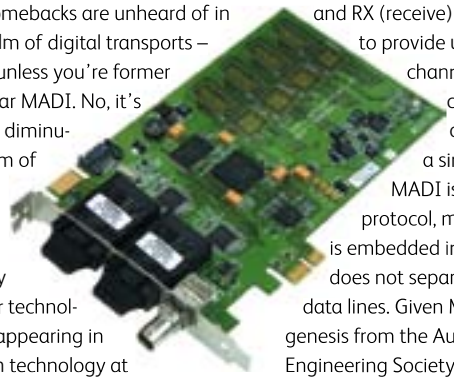
MADI
– The Comeback King!

Twenty years ago MADI ruled the roost, but then its reign slowly dwindled. Now there's been a resurgence in the old technology. LEE MINICH of LabX Technologies examines its comeback, its underlying technologies, and the reasons for it all.

Lee Minich of LabX Technologies.

While career comebacks, reunion tours, and popularity resurgences are not uncommon in the music industry, such comebacks are unheard of in the realm of digital transports – that is unless you're former superstar MADI. No, it's not the diminutive form of Madeline; instead a nearly 20-year technology, reappearing in modern technology at an ever-increasing rate.



In 1991, the Multi-channel Audio Digital Interface (MADI) was introduced by the Audio Engineering Society, hence its "official" standard name – AES10. While the original incarnation of standard AES10-1991, defined 56 channels at 48 kHz with support varispeed (+/- 12.5%), it was later amended to support 64 channels at 48kHz without support for varispeed. In 2003, the standard was amended to the current AES10-2003 "double rate" support for 32 channels of 96kHz audio.

MADI was originally conceived to route digital audio through broadcast facilities via commonly available 75Ω coaxial cabling utilised for video distribution, where the typical MADI physical media is coaxial cable connected at the device via BNC connectors. For longer distances and electrical isolation, fibre optic connections are often found.

While MADI is unidirectional, i.e., data flows in only one direction, it is very common to find TX (transmit) and RX (receive) connectors to provide up to 64 x 64 channels via two coaxial or fibre optic cables on a single device.

MADI is a self-clocking protocol, meaning its clock is embedded in the data and does not separate clock and data lines. Given MADI's genesis from the Audio Engineering Society, there are also many similarities to two-channel digital transport commonly called AES/EBU (technically AES3, created in 1985), thus 28 or 32 AES3 streams can be easily transported via MADI.

A Sudden Resurgence in MADI

The widespread adoption of digital mixing consoles due to their ever-decreasing price points and footprints has further driven the digital audio industry and has certainly elevated the need for a convenient medium for point-to-point connections of large quantities of digital audio signals. MADI's 64-channel capability fits the needs of small to medium-scale consoles. Additionally, its support for both copper (coax) and fibre connections provides solutions for integration into broadcast facilities (via coax), as well as long distance options via fibre. This, coupled with a new generation of lower cost MADI devices from the likes of RME and other manufacturers, effectively brought new life to what once was considered a dying standard.

> "One of the challenges of utilising MADI is that it is inherently point-to-point. This is a blessing and a curse."

One of the challenges of utilising MADI is that it is inherently point-to-point. This is a blessing and a curse. The simplicity of connecting an RX to a TX is powerful and very similar to point-to-point convention analogue audio wiring (the tried and true XLR cable). The downside is it can be costly to perform "splits", sending the signal to multiple locations simultaneously, routing particular channels to various locations, or "merge" or combine channels from various MADI input devices into a single MADI stream. To accomplish this requires additional MADI devices called routers and mergers respectively. While these are prolific in broadcast facilities, they are often specialised and quite expensive pieces of equipment. Additionally, MADI is not a network like Ethernet-based standards such as Audio Video Bridging (AVB) whereby the transport medium is inherently multi-point and routable (in the case of AVB by configuring routing through the Ethernet switches).

When using MADI, it is important to be aware of the non-standard mechanisms for transmitting control data to the physical media. While AES10 clearly defines audio data format for standardised inter-device communication, there is an additional "side channel" of data available. Over the years, various manufacturers have implemented non-standardised uses of the data such as proprietary control of microphone preamps and other MADI-connected gear. Thus, utilisation of such control capabilities may vary between manufacturers' equipment.

The simplicity of point-to-point connections coupled with the high audio channel count capabilities will continue to make MADI an important part of the digital audio world for years to come. From near extinction to prominence… in that sense MADI is the comeback king!

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Wireless Update

The introduction of new UK and European radio frequency regulations is without doubt one of the hot topics in today's music industry. There is plenty of uncertainty about what will happen when next year's Channel 38 switchover takes place, and there is much talk about digital wireless versus analogue. Some people believe within just a few years, manufacturers won't be making any analogue wireless microphones. *Audio Media* talks to some of the major manufacturers about product upgrades, changes, and current trends that are being set in the wireless sector.

Stephanie Schmidt – Sennheiser
Don Boomer – Line 6
Wolfgang Fritz – AKG
Tuomo Tolonen – Shure
Kishore Patel – Audio Limited

AM: In the context of the new UK and European frequency regulations, what changes and upgrades to your product ranges have been made recently?

SS: For the UK, Sennheiser has launched its best-selling RF wireless series, the evolution wireless G3 and the 200 Series, in a special UK version to fully exploit Channel 38. In June, Sennheiser will also launch its brand new 1800 MHz systems (ew 100 G3-1G8 series). This higher frequency band is one hat has been reserved for wireless audio transmission exclusively in a number of countries across Europe. Users will no longer have to plan their systems around primary users or painstakingly search for gaps between TV channels. It's license free in some European countries, so there are no follow-up costs for the user.

DB: We at Line 6 entered the wireless category in a very unique position; we didn't have product to change or modify at all. However, we could develop an approach that accommodated the ever-changing RF landscape from the get-go. Our systems were designed from the ground up specifically to deal with these challenges. We purposely steered away from utilising modified existing technologies as it is almost certain that this approach is only a short term solution a there are many more rule changes to come and many new devices coming online, all of which are going to be competing for bandwidth.

TT: This is something that's been going on for the past seven years, but over the last eighteen months or so, Channel 38 has been the industry buzz-word. We now have a number of lines of radio mics including the PG, which is entry level, the PGX, the SLX, and the UHF-R, and we've most recently brought in the Axient wireless system, which is the first of its kind able to change frequencies that are undetected by the user to avoid interference. All our mics are now channel-38 ready, which I think many manufacturers haven't yet properly addressed.

WF: Due to the new regulations all over the world with the lost frequency spectrum in the professional UHF range, we have had to add new products to our wireless portfolio that support the new assigned frequencies. The UK has a unique frequency situation: the license-free frequencies were changed from TV channel 69 to 38. All over the world, this channel 38 is blocked for radio astronomy, except in the UK, therefore we developed the new Band for our WMS470 and Perception wireless range. Also in Germany and other EU countries, customers have to change their professional wireless equipment to new assigned frequency ranges. For example, in Germany it is now the 710 and 790 MHz range.

A second important development was our professional DMS700 digital wireless microphone. With its ultra wide tuning range of more than 150 MHz it is absolute future proof and supports the old and new frequency range. It sets a whole new level of audio quality and encryption security.

KP: We were able to upgrade some of our more modern equipment, but some of our older gear stretches back eight or nine years or so, which meant we couldn't because of the Roche compliance, and we couldn't get all of the components. For us, to be able to redesign boards for an obsolete product wouldn't make sense – it would be at a far greater cost than getting people to go and buy a new one. On our 2040s and our Envoy systems, we were able to accommodate these changes as it involves circuit boards.

AM: What, if anything, are your offerings in the digital wireless GHz range?

SS: For a Sennheiser digital wireless system, you'll have to bear with us for the time being…

DB: All of the Line 6 microphone systems are digital and operate in the 2.4 GHz ISM band. This allows them to be used everywhere without any concerns over licenses. Due to the nature of ISM bands, any near future rule changes are highly unlikely.

TT: Shure's only digital wireless offering is the PGX Digital series which utilises the 900 MHz frequency band.

WF: The 2.4 GHz frequency range is not supported by AKG at the moment. This range is very crowded and has limited channel quantity and working range. Due to this limitation, it is not recommended for professional applications.

KP: No – we haven't gone digital at the moment at all as all the parameters need to be addressed in our market. As far as the 2.4 GHz range – we think it is far too crowded an area to make applications work for our users.

AM: What trends do you see in product selection and deployment in the wireless sector?

SS: Frequency-wise, not all European countries have decided yet where

wireless systems are to operate in the future. The UK and Germany are really quite far advanced in their frequency regulations. For example, in Germany, wireless systems are moving to 710-790MHz (secondary user status). Most rental companies have already expanded their portfolio in this range, though this process has not been completed yet. They especially have invested in the 2000 Series systems, and broadcasters are also renewing their stocks or getting existing equipment converted for this range. Individual users are a bit more reluctant, but the topic is increasingly getting their attention of course – although many still can't actually believe they will soon have to leave their accustomed spectrum, which was free of charge in the bargain. The 710-790 MHz range requires a license.

DB: Well, I think the days of 'clear space' are rapidly coming to an end. The challenge will now be to design radios that can operate in crowded RF environments. Our system was designed for just this reason and is highly reliable in such a crowded space as the 2.4GHz band. As customer demand for mobile products increases and bandwidth shrinks, only those radios that can operate in crowded RF environments will succeed as more and more bandwidth shrinks away. Everyone will benefit as these new digital technologies offer marked improvements to sound quality, reliability, and ease of use.

TT: Beirg has been instrumental in convincing Ofcom how vital a role radio mics play in the UK, and often manufacturers confuse the issue claiming that Channel 69 is licence free – which is absolute rubbish. Since 2004, only a handful of manufacturers tried to explain that this was a big deal – a tiny portion of the industry – until money was mentioned. The fact is that you need a license for everything else except 863-865 MHz, which is the beginning of the TV channel spectrum. I think that it's absolutely possible that in five years from now, no manufacturer will make an analogue wireless mic, because of the huge surge we're seeing now in digital technology.

For now, audio quality and latency are the most important factors, which is why people should be binning their old gear and purchasing Channel 38-ready equipment. Also, because of this ignorance, I fully expect many complaints to come in to manufacturers from clients saying 'my radio mic sounds horrible' come the switchover. That's why we all need to raise awareness and educate people on this. Surrender your old systems to funding where possible and migrate to the new allocated bands.

WF: There is a definite trend in digital wireless systems going on. A much better audio quality and a better resistance against interference is also a big argument for digital systems. New developments will have easier interfaces and network capability, but the price will increase due to the tighter frequency spectrum, which makes it necessary to use more expensive components.

KP: I think that people look for far greater flexibility than in the past, because they really want to be able to work anywhere in the world, which in turn means a set of brand new challenges for us as manufacturers. In our market in particular, a lot of the equipment is for field use and is battery powered. A mains system in a studio based environment is very flexible in terms of the frequency hopping and frequency changing aspect, but as soon as you get to small portable units, the challenges really are far greater. People are always looking for battery powered systems that have half-a-day's worth of life in them. We don't want to be forced to make those compromises. On the other hand, I think there's a chance that we will be forced down the route of wider frequency bands and have a deal of selectivity. It is essentially two conflicting demands in the changing wireless world which is being more and more impacted on by wireless techs such as YMAX and anything on the TV spectrum.

To Sum Up...

In conclusion, there is plenty to talk about in the modern day wireless world. License-wise, it seems there may be a certain lack of education in terms of what's free and what's not, which looks like it could surprise more than a few people once the switchover to Channel 38 takes place! But it also looks like each of these manufacturers has a vision of how to deal with it when it does happen, and is altering its current systems accordingly. Perhaps more interesting though is the recent trend towards digital wireless systems; and I think it raises a serious question or two: could this be the beginning of the end for analogue wireless systems? And does that mean every manufacturer will eventually be forced to switch to digital? According to Shure's Tuomo Tonolen, that could well be the case as soon as 2016, and it'll be interesting to see how much traffic ends up on the already crowded 2.4 GHz range. We'll just have to wait and see.

Allen & Heath
40 Years Of Audio Excellence & Innovation

For over 40 years, Allen & Heath has been at the forefront of professional sound. Renowned internationally for its British-designed, high quality products, the company has set many benchmarks in sound technology, developing industry standard products for the DJ, PA and House of Worship markets, and becoming an early pioneer of distributed digital mixing systems.

Allen & Heath started out providing mixing consoles for the bands Genesis, The Who and Pink Floyd. Its current portfolio covers a broad spectrum of the industry, with recent users including Adele, AIR, President Obama's Nobel Peace Prize ceremony, ESPN Sports, Sasha and Deadmau5.

Products include the iLive digital mixing family, iDR digital installation series, Xone DJ range, ZED USB compact mixers, XB-14 dedicated broadcast console, GS-R24 and ZED-R16 recording mixers, GL multi-purpose series, MixWizard compact series and PA portable series.

iLive Digital Mixing System

Allen & Heath's iLive digital mixing systems have built a strong reputation for audio quality and ease of use. Featuring an extremely flexible architecture with large-scale audio distribution and control, iLive is designed to bring an analogue feel to digital mixing and draws on the company's extensive experience in live sound and digital technology.

There are several Control Surface and MixRack variants, which can be mixed and matched in any combination and share the same firmware, so that show files are transferable between systems via a USB key. They connect together with CAT5 cable and use the Ethernet protocol for control, such as EtherSound or Allen & Heath's proprietary ACE (Audio Control Ethernet) link, which allows cost effective long distance point to point control and audio communication over a single CAT5 cable up to 120m in length by combining digital audio and Ethernet traffic.

All MixRacks feature the same 64x32 RackExtra DSP mix engine architecture, providing processing for 64 channels, 32 mixes, and eight stereo FX processors. The latest dualcore DSP technology handles all the FX and mixing along with the full dynamics, EQ and delay for all inputs and outputs simultaneously. The flagship iDR10 MixRack is modular, with ten slots for eight-channel analogue or digital audio interface cards, while the iDR-16, iDR-32, iDR-48, and iDR-64 MixRacks have fixed I/O arrangements.

The Port B option slot allows further audio networking possibilities, for example digital mic splitting and multi-track recording, with ACE, EtherSound, Rocknet, Dante, MADI, ADAT, and Aviom™ interfaces available, while a built-in network switch and MIDI ports at each end allow remote control using laptops, touch tablets and MIDI devices. The racks are compatible with the Allen & Heath PL Series remote controllers and iLive Editor software, a user-friendly JAVA-based program that enables both offline set up and online real time operation of the system with or without a Surface connected. Allen & Heath has also designed the iLive Tweak app for iPhone and the MixPad app for iPad, providing control of iLive's essential functions for live mixing.

There are 7 iLive Control Surfaces – the rackmountable iLive-R72, iLive-80, iLive-T80, iLive-112, iLive-T112, iLive-144, and the iLive-176 – which are designed to reflect the look and feel of an analogue console and which an experienced sound engineer would be able to walk up and use immediately. The faders are motorised and grouped in sections and layers, giving up to 176 control strips on the largest size surface. There is an LCD with multi-colour backlight above each fader for labelling and colour-coding channel information. The channel controls for preamp, filter, gate, EQ, compressor and limiter/de-esser are laid out across the top of the surface on rotary controls with LED indicators, while a colour TFT touch screen presents a graphical view of the processing and access to the automation and set up screens. Audio at the surface is also available for convenient interfacing.

iLive is derived from the iDR digital installation mixers, the iDR-8 and iDR-4, which are also compatible with an iLive system, enabling the configuration of comprehensive, integrated venue audio systems.

GS-R24

Specifically aimed at busy project studios, the GS-R24 is a high quality analogue console and summing mixer with boutique preamps, parametric EQ and comprehensive routing and monitoring options, combined with full DAW integration thanks to MIDI controllers and automated faders. It is available with a choice of interface cards: an Analogue card and a 32-channel Firewire card with ADAT optical connectivity.

ZED Series

The ZED range of small format, USB-equipped mixers is designed to be flexible and affordable for the working musician to use on the road or in the studio.

GL Series

Based on dual-function capability, which Allen & Heath pioneered in the early 1990s, the GL range has been developed with a feature set dedicated to modern sound engineering, such as ambient matrix recording, fast IEM mixing, aux-fed sub, and engineer's wedge monitor.

MixWizard Series

The multi-purpose and compact MixWizard series still retains its market leading status due to a strong blend of professional features, including an all-metal chassis, individual circuit boards, nutted rotary controls, smooth 100mm faders, LED metering, as well as 6 aux sends, 4 band EQ, digital FX and expansion capability.

ALLEN&HEATH

INFORMATION

Allen & Heath Ltd.

t +44 (0)1326 372 070

e sales@allen-heath.com

w www.allen-heath.com

Avid
VENUE: A Revolution in Live Sound

Avid VENUE is a state-of-the-art live sound production environment that delivers studio-grade sound, unprecedented reliability, powerful performance, and complete ease of use.

From intuitive consoles and easy-to-use VENUE software, to Pro Tools® integration and the widest array of TDM processing at your fingertips, VENUE is shaping the future of live sound. VENUE systems feature:

- Amazing sound designed by the same company that made Pro Tools the industry-leading digital audio workstation. VENUE systems deliver the same amazing sound quality to live sound environments.
- Rock-Solid Reliability with redundant power supplies and the industry's first 'backup mode' feature allowing you to continue mixing the show without any audio loss should you ever need to reset the host computer.
- Fully integrated plug-ins with direct support of the same high-resolution audio plug-in format used in countless Pro Tools-equipped recording studios.
- Virtual Soundcheck with Pro Tools integration offering an innovative workflow for sound checking, and allowing you to fine-tune the mix to the current venue without requiring the presence of the performers.
- Complete compatibility across the VENUE product range with the same software platform.

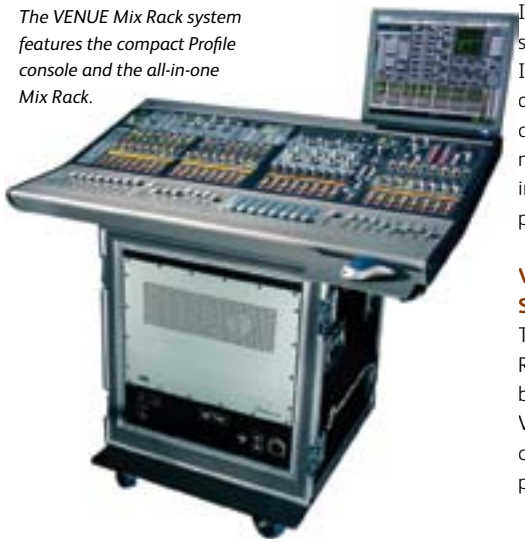
Whatever your application, Avid offers four main systems that can be expanded and customised for specific applications and a variety of interface needs. From concert and broadcast performances, to house of worship and theatre installations, VENUE systems can be re-scaled by simply adding or switching out VENUE components.

VENUE D-Show System

For the ultimate in versatility and scalability, the VENUE D-Show System is based around the VENUE D-Show console and employs a VENUE FOH Rack and Stage Rack processing and I/O system. This system offers the greatest amount of I/O and console expandability, enabling it to accommodate even the largest ensemble performances.

VENUE Profile System

The VENUE Profile System is based around the 24 fader VENUE Profile console and employs a VENUE FOH Rack and Stage Rack processing and I/O system. This system offers great I/O expandability and a compact console, providing maximum power in a smaller footprint.



The VENUE Mix Rack system features the compact Profile console and the all-in-one Mix Rack.

VENUE Mix Rack System

The VENUE Mix Rack System is based around the VENUE Profile console and employs the all-in-one VENUE Mix Rack processing and I/O component in a single 11U rack. This compact system offers an affordable entry into VENUE.

VENUE 2.9 software offers enhanced communication between Pro Tools and VENUE systems through VENUE link.

VENUE SC48

VENUE SC48 is a fully integrated live sound system that combines all I/O, digital signal processing, and tactile control into a single console, making it the most affordable and portable VENUE system yet. The console not only features the celebrated characteristics of VENUE, including studio-quality plug-in support, seamless integration with Pro Tools LE systems, and complete show file portability, it offers several innovative new workflows that streamline the mixing process, allowing you to concentrate on mixing the show instead of operating the board.

VENUE 2.9 Software

At the heart of every VENUE system is the same software platform. Turn your VENUE system into the most advanced live sound production system ever, and spare yourself from tedious, time-consuming tasks. With VENUE 2.9 software, featuring VENUE Link – an intelligent, two-way communication tie – the VENUE live sound and Pro Tools recording worlds collide, enabling you to tackle complex productions, show archiving, and Virtual Soundcheck from one fully integrated solution, with speed and ease. VENUE 2.9 software adds features to create new Pro Tools sessions based on your currently loaded VENUE show file, import VENUE channel names into Pro Tools, and sync VENUE snapshots and Pro Tools markers. Plus, you gain even more functionality with VENUE SC48 and Mix Rack with newly supported hardware options; support for the VENUE IO16 Option Card for VENUE SC48 and support for the IOx Option Card with Mix Rack-based systems.

Introducing the VENUE MADI Option Card

Bring your VENUE live sound workflow to any MADI (Multi-channel Audio Digital Interface) environment. With each VENUE MADI Option Card, you can send up to 64 channels of audio from your VENUE system to other MADI devices – including routers, digital mixing consoles, and mobile recording setups – and vice versa. Simply install the card into your system's FOH rack or mix rack to bring industry-standard MADI connectivity to VENUE.

avid.com

INFORMATION

Avid – Audio Headquarters
2001 Junipero Serra Boulevard
Daly City, CA 94014-3886 USA
t +1 650 731 6300
f +1 650 731 6399

Avid – European Headquarters
Pinewood Studios, Pinewood Road
Iver Heath, Bucks, SL0 0NH UK
t +44 (0) 1753 655999
f +44 (0) 1753 654999

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Crown Audio: On Stage Power

Crown Audio products form a vital and integral part of many live stage arenas. We finds out why.

Since its founding in 1947, Crown Audio has become one of the largest and most respected manufacturers of Pro Audio amplifiers. Lennart Dahlgren of Harman's Swedish distributor Septon Electronic talks about the pro sound and installation market and Jim Risgin, VP of On Stage Audio International, reveals why Crown Audio has been an integral part of the Illinois-headquartered rental company's inventory for the last 10 years.

Lennart Dahlgren – Septon Electronic

What do you feel sets Crown Audio apart over other manufacturers?
To be honest, I believe that the sound quality is its biggest strength; when I first listened to Crown Audio products, the difference in the audio was bigger than even I expected myself. Also, the built-in DSP and System Architect are big plus points; it helps to have that same platform for the entire Harman brand.

You take care of Crown Audio's distribution for Sweden – what's an average working day for you?
Yes – that's where my focus is. I find myself dealing with clients on a daily basis, concentrating a lot on the system solution. And also, with the System Architect and the networking between units it definitely helps make my job a lot easier.

What units are the most popular and why?
Well, there is demand for I-Tech, and XTi is also very popular, which is a cheaper amp with DSP built in.

A kind of entry level in Pro Audio?
Yes. And the new XLS Drivecore Series has a built in digital crossover; it's very lightweight and it sounds good as well – it's certainly a more affordable way into Pro Audio equipment.

Jim Risgin – VP, On Stage Audio Inc.

So you're a big user of Crown Audio amplification? What stands out in your opinion?
Yes – for about 10 years. We switched over after using different manufacturers and found the reliability and sound quality to be enough of a difference to invest in an entirely new amplifier line. Since then it's been the workforce of our inventory; we recently invested in a large number of their VRACK packages.

Why the VRACK particularly?
Because it's a pre-packaged system which enables us to buy the amplifiers one day and have them out generating revenue for us within a week instead of having to go through it all ourselves. We found that to be a tremendous advantage. It's also cost competitive – and it's integrated into the System Architect control software which makes it even easier to use; that's the networking and DSP that's built into the amplifier. It's unique because it's a rack package, it's got control panels, and it's generally easier than dealing with individual units.

You've been using Crown Audio for 10 years. Have you seen the brand develop much over that time or have you always regarded it as a market leader?
I have always thought of Crown Audio as a well established top brand, but in the last 10 years I believe that it has established itself as the pinnacle of networks: Harman's proprietary network control system – HiQnet; and a distributed DSP amplifier platform. It has networked more amplifiers than probably all other manufacturers put together; and in this day and age that is a huge strength, which, along with its outstanding audio quality and reliability, is the reason we consider it an industry leader."

Crown Audio
w www.crownaudio.com

Crown On Stage

On Stage Audio (OSA International) was established in Chicago, IL in 1985. Now in its 25th year of operation and with offices all over North America, VP Jim Risgin says that between the Chicago and Las Vegas offices alone, OSA International covers well over 100 shows per month. 70 % of those shows include Crown Audio amplifiers, which Risgin swears by. He believes that Crown Audio offers 'the complete package' with its range of products and its ever-reliable support team, which he claims is the best he has ever worked with.

"Whenever we've needed a product replaced, we've had it delivered either on the same day or overnight," he says, "and a member of Crown Audio's team will always come on-site just to make sure that I'm happy; I have never had such a good service from any other manufacturer."

As well as the new high-output pre-packaged VRACK amps with built in DSP, Risgin reveals that OSA International also stocks a host of other Crown Audio amplifiers, which are used in a variety of Pro Audio applications.

"We have a bunch of I-Tech, I-Tech HD, and the older Macro-Tech models," says Risgin. "The smallest applications are the simple ballrooms with breakout systems – a couple of speakers on sticks; and the largest are the arenas, some of which have over 20,000 seats."

"Our ability to set amplifiers in unique and sometimes bizarre locations means we often get stuck in challenging situations," reveals Risgin. "Having the ability to distribute, control and monitor with reliability is critical to us."

JoeCo BLACKBOX
Multi-track adopts MADI and Dante

The BlackBox family of multi-track machines for live use is extended with the arrival of the latest MADI and Dante-enabled versions of the BlackBox Recorder, alongside the new BlackBox Player for dedicated multi-channel playback.

Developed to solve the inherent problems of working with computer-based systems in a live performance environment, the BlackBox Recorder provides engineers with a computer-free, high-quality solution for multi-channel live audio capture in a compact 1U format. With an increasing range of analogue and digital interface options, the BlackBox can operate at up to 24-bit/96kHz storing audio on a USB2 hard drive in multiple mono Broadcast WAV files, making the audio available for instant import into any Mac- or PC-based Digital Audio Workstation. The standard 24-channel devices play an increasing role in broadcast, film, and TV sound, post production, and theatre, as well as capturing live performance.
The latest additions to the BBR family incorporate MADI and Dante multi-channel networking technologies.

BBR64-MADI

The BlackBox BBR64-MADI Recorder can capture the full 64 channels of MADI data at standard sample rates directly to Broadcast WAV files on an external USB2 drive, yet still only occupies one unit of rack space. Double sample rate MADI recording (96kHz) is also accommodated.
The recorder sports both coaxial and optical MADI connections for interfacing with any MADI equipped console or other equipment. Additionally, the BBR64-MADI caters for 56-channel legacy MADI and can record an additional eight channels of analogue (balanced line in) for capturing the audience or general ambience.

The BBR64-MADI will lock to or generate word clock, as well as locking to the received MADI data stream. The MADI input is echoed to the output to ease integration.

BBR-Dante

The new BlackBox BBR-Dante Recorder can connect to any Dante-enabled network device from a broad range of console and converter manufacturers to offer 32-channel recording and playback. Supporting standard network components and switches (Gigabit Ethernet over Cat 5 cable), it can similarly record up to eight channels of analogue (balanced line in) alongside the inputs from the Dante network. For synchronisation purposes the BBR-Dante system can lock to and generate word clock, or lock to the incoming Dante audio stream.

Monitoring: A New 'Look'

The impracticality of producing a local monitor mix has led to a change of approach. Instead of a fully controllable internal mixer, individual channels or pairs of channels can be monitored on an internal PFL bus providing both hi-resolution metering and headphone output. Other unique BlackBox features remain including the Safe 'n' Sound record recovery function, remote control capabilities, and the ability to stack multiple units for even larger track counts.

The BlackBox Player

The BlackBox Recorder's core technology also forms the basis for the BlackBox Player, a dedicated multi-channel playback device able to simultaneously replay up to 24 channels of high quality audio at up to 24-bit/96kHz. Designed to replay backing tracks and multiple surround stems, the Player meets a range of requirements from solo artists or bands using pre-recorded backing tracks, permanent installations such as museums, galleries, and themed entertainment needing reliable playback facilities, through playback applications requiring timecode synchronisation, or broadcast applications involving timed multi-language or multi-station play-out.

Playback material can be loaded from any DAW capable of creating Broadcast WAV files and stored on a standard USB2 drive or Flash RAM drive. Set lists can be configured into simple XML format playlist files. Songs are automatically cued for instantaneous replay and multiple playlists can be stored ready for quick changes or alternative show formats.

The Show Must Go On

Simple to operate and triggered from a variety of sources including footswitch, QWERTY keyboard, timecode, and MIDI commands, the Player also has a number of integrated safety features ensuring that the all-important "show must go on" criteria are always met.

INFORMATION

JoeCo Limited
135 Histon Road, Cottenham,
Cambridge CB24 8UQ, UK

t +44 (0) 1223 911000
w www.joeco.co.uk

For details of your local distributor, please visit:
http://www.joeco.co.uk/main/distribution.html

Midas – The Audio Gold Standard

An audio console is, first and foremost, about audio. Midas has always set the gold standard for live sound, and continues to ensure that the adoption of new technologies does not compromise this in any way.

Midas Digital Systems Overview

The Midas XL8 and PRO series digital mixing systems consist of a control centre and a number of fixed or configurable 19-inch rack modules, which are inter-connected by a networked audio and data system. The network carries both proprietary control data and open architecture AES50 digital audio via readily available standard CAT-5e/CAT-6 and fibre optic cabling and connectors. This 'system' approach means Midas provide not only a mixing console, but also a complete analogue and digital audio control and distribution system.

The Midas PRO series comprises of three control surfaces, modular remote processing engines, and a choice of five different models of I/O hardware. PRO3 is the natural successor to the industry-standard Heritage 3000, with its 48 (+8) inputs and 27 busses. However, the PRO3 can be upgraded at a later date to full PRO6 and PRO9 specification, offering up to 88 inputs and 35 buses. The PRO series consoles are all expandable up to 288 inputs and 288 outputs at the network level.

The Midas XL8 is the perfect solution for high-capacity and high-profile applications, both touring and fixed install. It has a network capacity of up to 432 inputs and 432 outputs in 18 different locations, up to 144 simultaneous channels, and 51 mix busses, plus built-in tolerance to any failure scenario.

Joel Lonky FoH for Rob Zombie on a Midas PRO6.

Midas Sound Quality

The Midas reputation for fantastic audio quality has evolved over 40 years of research and development. By designing the best mic pre's, equalisation and using superior components, Midas has carried this tradition into the digital realm. Adding the best converters and custom processing algorithms to the mix, Midas takes audio quality to another level. Midas digital systems are the only live sound systems in the world to have a comprehensive and automatic latency management system. Which, in addition to managing all internal routing and processing latency, also includes compensation for external analogue inserts. This means that all audio samples are synchronised before summing, resulting in absolute phase coherency at all outputs.

Midas digital feels, as well as sounds superb. All the variable controls on the console are genuine analogue high precision potentiometers, not mechanical encoders. These access the FPGA-DSP engine through precision instrumentation A-D converters and Midas' custom interpolation algorithms. This means that as well as all audio, all the operator input is fully interpolated to ensure a linear, analogue-style, silky smooth feel to your mix.

The Midas microphone pre-amp is the one by which all others are judged. Still built from discrete components and still based on the designs which were so successful in the legendary Midas analogue consoles such as the XL3, XL4, and Heritage, the current expressions in the XL8 range and PRO Series sound better than ever. Whether you want pristine, transparent reproduction, or that renowned Midas warmth and colouration, Midas' dual (analogue and digital) gain stages enable you to shape the mic amps' character according to your own preference.

Mix engineers working on analogue consoles routinely combine signals with different signal paths and processing and expect to do the same with digital. On many current digital consoles, combining signals in this way leads to the summing of signals that are in effect partly out of phase. This causes undesirable comb filtering effects, where specific frequencies are cancelled out completely. Midas are the only live digital consoles to have comprehensive automatic time alignment to correct any path related delays, including latency introduced by additional A to D conversion on external analogue inserts.

The processing engines for both XL8 and PRO series systems are both of modular design, which provides N+1 redundancy of hardware in the form of a redundant module. This means peace of mind during a show and better commercial viability, as the cost of the system is not burdened with the cost of an entire backup engine. Also unique to Midas are the modular I/O units which can be freely distributed into multiple locations. The digital audio network is easily configurable to route signals from where and by when they are needed since the patching is done a scene-by-scene basis.

Digi-log Goes Midas

Continuing a policy of innovation, the Venice*F* is Midas' first 'digi-log' console. Venice*F* offers the simplicity and ease-of-use of a compact analogue mixer, combined with the power and flexibility of digital processing. Three models of this powerful, low-cost Midas are available, offering 16, 24, and 32 inputs respectively. All are fitted as standard with a digital FireWire interface, which, when connected to a laptop computer with appropriate software can facilitate multi-track recording, playback, live FX, and the ability to run any third party plug ins as inserts on an analogue mixer.

Equally important to Midas is the design and implementation of many new areas of technology, specifically in the area of digital audio networking and advanced console navigation methods. Midas continues to anticipate and accommodate the rapidly changing and expanding needs of audio professionals who specify Midas consoles for their major tours, festivals, international events, broadcast projects, and high-profile fixed installations.

INFORMATION

Midas Consoles
Klark Industrial Park,
Walter Nash Road, Kidderminster,
Worcestershire, DY11 7HJ, UK
w www.midasconsoles.com
t +44 (0) 1562 741515
f +44 (0) 1562 745371
e james.godbehear@music-group.com

Riedel Communications
The Communications People Go Backbone

Riedel has proven expertise in fast and reliable communications solutions. RockNet audio networking together with MediorNet will rock your world.

Riedel Communications was founded in 1987. It designs, manufactures, and distributes sophisticated intercom, fibre, audio and professional radio technology for customers in the world-wide broadcast, defense, event, and theatre markets. The company is known for pioneering digital audio matrix systems, and is the market leader in fibre-network matrix systems. Riedel's product portfolio includes digital intercom and fibre optics solutions, digital audio networks, and professional mobile radio technology. Riedel is headquartered in Wuppertal, Germany and employs over 200 people in nine locations throughout Europe, Asia and North America.

Riedel's clients and projects have included all Olympic Games since the Lillehammer Winter Games in 1994. Furthermore, the company supplies all F1 Grand Prix circuits and various F1 racing teams with radio and intercom solutions. Events, broadcast networks, industry clients, and theatres rely on Riedel technology.

The Red Bull Air Race Championship, where Riedel provides all communications and signal distribution solutions, integrating both HD video and audio signals as well as wireless and wired digital intercom systems, received with two Emmy Awards in 2009 and 2010 in the *Outstanding Technical Team – Remote* category.

RockNet

Riedel's flagship audio network platform is RockNet, designed specifically for live sound applications. It is a cost-effective, integrated networking product, which was invented, designed, and optimised for audio contribution and distribution. RockNet provides ultra low latency and very high audio quality. It is easy to install as it's an integrated system that does not require any third party products. Only two types of cable are necessary to hook up a network: microphone cable with XLR (male/female), and CAT5 with RJ45 (Ethercon). RockNet devices do not require breakout panels or any special cables and connectors, and up to 99 devices can easily be added to the network, which can be set up within minutes.

All devices can be configured intuitively by front panel push buttons. No particular IT or computer network know-how is needed to set up and operate RockNet. The control section of all 19-inch RockNet products provides the controls to set up and configure the unit without a computer. It incorporates three two-digit displays and six push buttons that are used for intuitive operation of a three level menu.

RockNet offers superior resilience, incorporating a streamline redundancy concept on device and network level. The network interface of each device features two interconnections for fail-safe transmission of audio signals on the CAT5 infrastructure. Based on a redundant ring topology, RockNet forms a self-healing network with no loss of audio in case of a connection fault between two devices. Lateral ultra-low latency asynchronous transmission enables RockNet to support various redundant network topologies and to provide real-time isochronous data transport along with packetised data such as TCP/IP. The data rate is 400 MBits/s on a CAT5 cable and the number of nodes is limited to 99.

For the RockNet 300 series there are currently seven audio interfaces available, including the new RN.335.DI digital input interface, which provides eight digital inputs via AES; and the RN.334.MD MADI interface which offers electrical and optical inputs and outputs. Also available are the RN.301. MI microphone/line input interface; the RN.302.LO line output interface; the RN.331.DD digital I/O interface; the RN.332.DO digital output interface and the RN.333.DI digital input interface.

RockNet 300 network accessories include the RN.362.IR In-Line Repeater, which extends the length of the CAT5 based infrastructure between the two RockNet 300 devices to a maximum of 450m; and the 350 series fibre interfaces, which are designed to be used for applications where extended distance between network devices is required. They are equipped with universal transceivers for single or multi-mode fibres to meet the respective infrastructure requirements.

MediorNet Fibre Backbone

With Riedel's fibre-based signal transport and distribution solution MediorNet, the flexibility of event installation can be expanded even further. MediorNet provides a system wide backbone infrastructure that integrates various different signals such as audio, HD video, communications, and data signals into one single integrated network. This also includes integrated software-based signal processing and conversion. With the just recently unveiled MediorNet Compact, this technology is not only available for large installations but also for smaller applications.

MediorNet

MediorNet combines signal transport, routing, signal processing, and conversion into one integrated real-time network solution. This includes signal routing, allowing the user to send any incoming signal to any output or even to multiple outputs.

MediorNet also includes broadcast-quality processing and conversion on board. These features are software-based so they can easily be expanded in the future without any changes to the hardware.

MediorNet Compact is the cost effective and easy-to-use entry into the Riedel MediorNet world. It is the first fibre-based 21st century multi-media stagebox providing the flexibility of a true real-time media network, including integrated signal processing, at the cost of simple point-to-point products.

With a network bandwidth of 50 Gbit/s MediorNet Compact provides enough capacity for bi-directional transport of 12 HD-SDI signals, dozens of MADI streams, or hundreds of audio channels – ideal for streamlining the infrastructure of any application.

RIEDEL
The Communications People

INFORMATION

Riedel Communications GmbH & Co.KG
Uellendahler Str.353, 42109
Wuppertal, Germany
t +49 (0) 202 292 90
f +49 (0) 202 292 99 99
w www.riedel.net
e sales-international@riedel.net

Roland Systems Group
Inspire the Enjoyment of Creativity

Roland Systems Group is dedicated to supporting audio and video professionals who demand excellence in terms of performance and system design, consistently providing the entertainment industry with the best tools to capture, distribute, mix, and record creatively.

Innovation – An Evolving Story

From the dawn of the electronic musical instrument, Roland Corporation has been at the forefront of music and event production technology with the continual design and release of innovative and original products.

Roland's strategy is to be a provider of the best hardware with which to interface the best software and allow these products to be accessible to everyone. Indeed one of Roland Corporation's slogans includes "Be the BEST rather than the BIGGEST".

From high quality PA systems for concerts, events and production, to audio visual equipment for conference, retail, and commercial installations, the comprehensive range of products available from Roland Systems Group guarantees the reliability required by such demanding applications but still delivers supreme sound quality – from a company that truly knows 'sound'.

Roland Systems Group has the experience and knowledge to combine audio visual and video equipment to provide complete solutions and thereby affording comprehensive support for the live production industry.

Roland pursues innovation that leads to the technologies of the future, conducting R&D from the perspective of industry leader and developing original core technologies and innovations, many of which have earnt Roland Corporation the accolades of Japan's First and World's First.

Reliability & Superb Quality

REAC (Roland Ethernet Audio Communication) transfers 40 channels of audio in each direction at 24-bit and up to 96kHz including control messages – all over a single Cat5e/6 Ethernet Cable or Optical link. The digital audio sent by REAC over Ethernet cable prevents signal quality losses, ground hums, or other interference typically found with analogue snakes.

Easy & Intuitive

No IP address setup is necessary as devices are automatically recognised by the system and the appropriate menus present themselves. REAC provides pristine digital audio in a very light-weight, inexpensive, and easy to install cable format. Dedicated knobs, buttons, and a simple user interface eliminate any confusion when having to make quick adjustments. REAC Embedded Power is a unique Roland technology that enables the transfer of not only the digital audio but also the power required by the connected device – all via one Cat5e/6 cable.

System Expandability & Flexibility

Once infrastructure is installed, adding in the products and expanding the REAC system is intuitive and simple to do. This next generation of digital audio system can easily be incorporated into an existing analogue infrastructure and the connection of a digital snake provides the most noticeable absence of interference associated with standard multi-cores.

Simply plugging in a CAT5e/6 cable into a computer installed with Cakewalk SONAR Producer provides the ability to capture up to 40 channels of live audio – or alternatively simply connect to the R-1000 48-track Recorder/Player for dedicated recording on hardware of up to 48 channels along with Virtual Soundcheck and selective multi-channel playback capabilities.

New Possibilities

When personal monitoring is a requirement, then the M-48 Live Personal Mixer offers musicians the next generation in unprecedented flexibility to control exactly what they want to listen to during their performance.

Once a REAC network is running and connection between Roland Digital Snakes and Roland V-Mixers is established the system will provide a unique mixing capability at FOH, monitors, broadcast splits, and recording facilities.

A new addition this year to the product line-up is the Roland M-480 48-channel Live Digital Mixing Console, a desk that provides superb sound quality, powerful functions, expandability with console cascade, and intuitive operation. The V-Mixing system continues to introduce new possibilities to the live mixing market.

By using the Roland S-MADI REAC MADI Bridge, connection to other digital systems using MADI becomes possible and provides the gateway for all REAC devices to be able to communicate with other digital devices.

However, if you are a professional seeking a solution to interconnect between video mixers and audio mixers, Roland has an additional core technology called V-LINK. This technology enables the operator to control the audio levels of the sources being presented on the video output screen.

Beyond V-LINK, Roland Systems Group has additional products in its line-up including the VR-5 AV Mixer & Recorder, providing capture and live streaming capabilities for all types of productions and presentations.

Above all, Roland Systems Group can provide a one-stop shop solution for engineers, installers, designers, and consultants.

Roland Systems Group

INFORMATION

Roland Systems Group UK
Atlantic Close, Swansea,
SA7 9FJ, UK
t +44 (0) 1792 702701
f +44 (0) 1792 600520
e info@rolandsg.co.uk
w www.rolandsystemsgroup.co.uk

SADiE 6 LiVE:
Robust Reliable High End Recording

Taking location multi-track recording to a higher level, SADiE's LiVE Series of recorder/workstations takes on the new challenges of large scale concert recording, location TV sound, and on-location sound capture. Acquired by Prism Sound and with a LiVE agenda…

Origins of the SADiE 6 LiVE Series Recorders

The idea to develop a robust and reliable range of location and live sound recording systems began in 2004. Already many recordists were taking laptops and portable SADiE BB2 on location for a variety of tasks, however there was an increasing need for a multi-track solution. Combining recording and editing software with robustness and reliability were crucial needs, so the SADiE LRX was born.

In 2008 the Prism Media Products Group took ownership of SADiE, and building on SADiE's already well established footing in live and location recording introduced the SADiE LiVE range of recorders.

Reliability & Convenience

Toby Alignton of Richmond Studios expands on this. "SADiE is one workstation that never let us down, we just plugged in MADI wordclock and timecode and the system ran perfectly." Toby used an LRX 2 at the BBC Children in Need concert at the Albert hall to record acts such as Lily Allen, Dame Shirley Bassey, Paolo Nutini, Snow Patrol, Sir Paul McCartney, and Take That.

Equally at home front of house at a concert installed in an OB truck or on location, the LRX2, Live H64, H128, and Solid State workstations all include the option to mirror record giving the ability to record to two simultaneous destinations.

SADiE LiVE Series

The current SADiE LiVE range consists of the LiVE LRX2, LiVE H64, LiVE H128 large scale recorders, and most recently the newly introduced Solid State LiVE recorder and workstation.

All of the systems have been developed with a significantly expanded track count, allowing the LRX2 to record up to 64 tracks. The LiVE H64, H128, and Solid State systems are capable of recording up to 128 tracks via MADI, AES, Mic or Line respectively, using the same modular I/O cards as the LRX2.

SADiE LRX2 Location Recorder Located under the Friendly Fires FOH console.

High Quality Sound Capture

Is all this convenience and portability at the expense of sound quality?

Absolutely not, as the growing list of high-end recording engineers has proven. SADiE's sound is regarded by many audio professionals as being second to none.

The Hardware Packages

The LRX2 connects via USB to any computer running Windows while the hardware comprises of an all metal constructed unit, designed to be the 'base' for the connected laptop. It houses all the DSP, I/O cards, monitoring, time-code, video, and AES reference connections, as well as the small assignable mixer with motorised faders. Power is connected via a four-pin XLR. It is also possible to power the unit from a 12V battery pack.

The Live H64, H128, and Solid State workstations are supplied as turnkey solutions with fully modular I/O capabilities. The systems are housed in a 4U rack mount housing with an optional 3U multi-channel interface box for the I/O

The Software Packages

The LRX2, H64, H128, and Solid State systems are supplied with the dedicated 'MTR' (Multi Track Recorder) software. In addition there are four fully featured application specific SADiE 6 software suites available:-

- Radio Producer
- Post Production
- Mastering
- Sound Suite (flagship)

SADiE records using the Broadcast WAV format, with full Metadata support provided as standard. A DV-AVI video stream may also be simultaneously captured for reference. Sessions created in the single-screen MTR software can be opened in any of the full SADiE software Suites for full post, mastering, multi-track editing, and Radio production operations.

Live F.O.H Mix Engineer Richard Barling used a SADiE LRX2 location audio workstation on the three-week Friendly Fires tour in the United States. "The LRX2 performed very well," Barling says. "I really like the LRX2 because of its size and weight – I didn't have to carry around massive flight cases, etc, which was handy as this tour was in the US," says Barling. "In fact, at one gig in Canada we turned up 45 minutes before doors opened. The combination of the Vi6 and the LRX2 meant that I was able to set up and start making noise within 20 minutes of the gear arriving at a F.O.H position"

SADiE 6 LiVE

INFORMATION

Prism Media Products Ltd
The Old School, Stretham,
Ely, Cambridge CB6 3LD, UK
t +44 (0) 1353 648888
f +44 (0) 1353 648867
w www.sadie.com
e sales@sadie.com

Sennheiser – A Passion for Sound

From big live shows to intimate club gigs, Sennheiser microphones and monitoring systems ensure optimum live sound for every type of venue and event.

Passion for sound and music is the common denominator in the audio business, from the manufacturers of audio equipment to the bands and artists that rely on their tools. This passion is almost palpable at Sennheiser, and is reflected by the products the company offers for the live sound business.

Wired evolution Series Stage Microphones

Designed with the aim of providing a complete range of microphones for vocals and backline, evolution microphones were launched in 1998. Since then, they have become a standard on stages around the world, and are known as rugged, reliable tools for the live sound engineer. The evolution 600 line offers instrument microphones for the complete backline, while the 800 line are vocal microphones that cater for any stage situation.

The most recent line, the award-winning evolution e 900 series, is the pinnacle of evolution live microphones, including both vocal and instrument microphones. The range encompasses everything from dynamic drum mics (the e 901, e 902, and e 904) to the e 906 guitar amp mic and small-diaphragm condenser models such as the e 914 and the clip-on e 908. Vocal microphones are the cardioid e 935, super-cardioid e 945 (both dynamic mics), and the e 965, a true condenser, large-diaphragm stage microphone with switchable pick-up pattern (cardioid/super-cardioid).

The evolution series microphones are joined on stage by such all-time classics as the MD 421 – a firm favourite on guitar amps, toms, and wind instruments – and new microphones such as the MK 4 large-diaphragm side address mic, which excels at vocals, acoustic instruments, drums, and guitar amps.

Wireless Microphone Systems

The name Sennheiser has become synonymous with reliable RF wireless transmission, whether it's a small gig with just a few wireless mics on stage or a large TV event involving multi-channel systems and complex RF environments.

The Sennheiser portfolio includes a wide variety of evolution wireless G3 systems for instruments and vocals, the mic heads of the latter coming from their famed wired counterparts. Sennheiser's 2000 Series is the 'bridge' between evolution wireless systems and the company's top-of-the-range RF wireless equipment, and is equally at home on the stage and in broadcasting. Large touring productions, TV shows, broadcasts, and globally active bands rely on Sennheiser's 3000 and 5000 Series systems, SKM 5200-II handheld transmitters, SK 5212-II bodypack transmitters, and EM 3732-II dual-channel receivers, which are setting standards in multi-channel capability and reliability.

evolution e 965: the top evolution model is a large-diaphragm true condenser, switchable between cardioid and super-cardioid patterns – also available as a wireless version.

Wireless Monitoring

From the first systems in the 1990s, wireless monitoring has come a long way in becoming the standard rather than the exception.

The advantages are obvious: no stage clutter, less transport costs, and every artist (and engineer) gets just the mix he or she needs, at a sensible volume level.

For monitoring, Sennheiser offers its industry standard evolution wireless G3 IEM systems, as well as the new 2000 Series IEM systems.

Wireless Systems Manager

All the above Sennheiser wireless microphone systems and monitoring systems can be monitored and remotely controlled via the Wireless Systems Manager, a free software programme for Sennheiser customers. This allows the engineer to pre-programme devices prior to an event, scan the radio environment on site, and get frequency recommendations for mics, IEMs, and spares, check the RF field strength of transmitters, create control networks, and monitor the various mixes for a band via his or her own beltpack.

Large TV broadcasts and live shows rely on Sennheiser wireless equipment. (Photo: Ralph Larmann)

SENNHEISER

INFORMATION

Sennheiser electronic GmbH & Co. KG
Am Labor 1, 30900 Wedemark, Germany
t +49 (5130) 600 0
f +49 (5130) 600 300
w www.sennheiser.com

Sennheiser UK Ltd
3 Century Point, Halifax Road
High Wycombe, Bucks HP12 3SL
t +44 (0) 1494 551551
f +44 (0) 1494 551550
w www.sennheiser.co.uk

Directory

This directory lists a selection of manufacturers who are directly relevant to or in some way applicable to the live sound technology market. Apologies if we've missed you out. If this is the case, please contact us on +44 (0) 1223 911639 or at mail@audiomedia.com and we will correct the ommission in the downloadable pdf version of this supplement (available from www.audiomedia.com).

A&G Soluzioni Digitali
www.aegweb.com

Ableton
www.ableton.com
+49 30 288 763 231

A-Designs Audio
www.adesignsaudio.com
+1 818 716 4153

Adam Hall Group
www.adamhall.com
+44 (0) 1702 613 922

Adamson Systems Engineering
www.adamsonsystems.com
+1 905 982 0520

AEQ International
www.aeqbroadcast.com
+1 800 728 05 36

Aevox Audio
www.aevox.be
+32 473 34 38 80

Alto Professional Audio Products
www.altoproaudio.com
+886 4 2233 5858

AKG Acoustics
www.akg.com
+43 1 86654 0

Alcons Audio
www.alconsaudio.com
+ 31 0 229 28 30 90

Alesis
www.alesis.com
+1 401 658 5760

Allen & Heath
www.allen-heath.com
+44 (0) 1326 372 070

AMG Electronics
www.c-ducer.com
+44 (0) 1428 658775

AMT
www.appliedmic.com
+1 908 665 2727

APB DynaSonics
www.apb-dynasonics.com
+1 973 785 1101

Apex
www.apex-audio.be
+32 (0) 11 28 61 91

Aphex Systems
www.aphex.com
+1 818 767 2929

API (Automated Processes Inc.)
www.apiaudio.com
+ 1 301 776 7879

Applied Research & Technology (ART)
www.artproaudio.com
+1 716 436 2720

ASL Intercom
www.asl-inter.com
+31 30 241 1901

ATC
www.atc.gb.net
+44 (0) 1285 760 561

Ateis
www.ateis-international.com
+31 (0)10 2088690

atlantic audio
www.atlanticaudio.de
+49 211 99 88 88 8

Audio Toys, Inc. (ATI)
www.audiotoys.com
+1 301 776 7879

Audioco Systems Oy
www.audico.fi
+358 2 415 5400

Audient
www.audient.co.uk
+44 (0) 1256 381 944

Audio Limited
www.audioltd.com
+44 (0) 1494 511 711

Audio-Technica (UK)
www.audio-technica.com
+44 (0) 113 277 1441

Audio Video Technologies (AVT)
www.avt-nbg.de
+49 (0) 911 5271 160

Audix
www.audixusa.com
+1 503 682 6933

Avalon Design
www.avalondesign.com
+1 949 492 2000

Avid Technology
www.avid.com
+44 (0) 1753 655 999

Aviom
www.aviom.com
+1 610 738 9005

Avlex
www.avlex.com
+1 816 581 9103

B-52 Professional
www.B-52PRO.com
+1 323 277 4100

Barth Acoustic Systems
www.barth-acoustic.com
49 (0) 7022 50 35 07

BBE Sound
www.bbesound.com
+1 714 897 6766

Behringer
www.behringer.com
+49 2154 9206 0

Beijing 797 Audio
www.797audio.com
+86 10 5978 9246

beyerdynamic
www.beyerdynamic.com
+49 7131 617 0

Blue Microphones
www.bluemic.com
+1 818 879 5200

Bosch Communications Systems
www.boschcommunications.com
+49 (0) 9421 706 307

Bricasti Design
www.bricasti.com
+1 781 306 0420

BSS Audio
www.bssaudio.com
+1 801 566 8800

Buzz Audio Ltd
www.buzzaudio.com
+64 (0)4 472 3084

BXB Electronics
www.bxb.tw
+886 (7) 9703838

CAD Professional Microphones
www.cadmics.com
+1 440 349 4900

Cadac Electronics
www.cadac-sound.com
+44 (0) 1582 404 202

Celestion International
www.celestion.com
+44 (0) 797 349 3471

Cerwin-Vega!
www.cerwin-vega.com
+1 954 316 1501

Chameleon Labs
www.chameleonlabs.com
+1 206 264 7602

Chandler Limited
www.chandlerlimited.com
+1 319 885 4200

CharterOak Acoustic Devices
www.charteroakacoustics.com
+1 860 698 9794

ClearCom
www.clearcom.com
+44 (0) 1223 815 000

Clockaudio Ltd
www.clockaudio.com
+44 (0) 23 9225 1193

Coda Audio
www.codaaudio.com
+49 (0) 511 866 55 888

Coles Electroacoustics
www.colesselectroacoustics.com
+44 (0) 1992 466 685

Countryman Associates
www.countryman.com
+1 650 364 9988

Crane Song
www.cranesong.com
+1 715 398 3627

Crest Audio
www.crestaudio.com
+1 866 812 7378

Crowley & Tripp
www.soundwaveresearch.com
+1 508 231 4515

Crown Audio
www.crownaudio.com
+1 574 294 8000

d&b audiotechnik
www.dbaudio.com

DAS Audio
www.dasaudio.com
+34 96 134 0206

DAV Electronics
www.davelectronics.com
+44 (0) 20 8892 9334

dB Technologies
www.dbtechnologies.com
+49 2203 9253723

dbx Professional Products
www.dbxpro.com
+1 801 568 7660

Delec Audio und Videotechnik
www.delec.de
+49 6351 13170

DiGiCo UK
www.digiconsoles.com
+44 (0) 1372 845 600

Digigram
www.digigram.com
+33 (0)4 76 52 47 47

DPA Microphones
www.dpamicrophones.com
+45 4814 2828

Drawmer
www.drawmer.com
+44 (0) 1924 378 669

Duran Audio
www.duran-audio.com
+31 418 515 583

Dynacord
www.dynacord.com
+49 (0) 9421 706 0

Earthworks
www.earthworksaudio.com
+1 603 654 6427

Eastern Acoustic Works
www.eaw.com
+1 508 234 6158

Ecler Laboratorio de Electro-Acustica
www.ecler.es
+34 902 22 14 00

EDIROL Europe
www.edirol.co.uk
+44 (0) 20 8747 5949

Electro-Voice
www.electrovoice.com
+1 866 782 8346

Elysia
www.elysia.com
+49 (0) 2157 12 60 40

EM Acoustics
www.emacoustics.co.uk
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